

U-matic S SP

PORTABLE VIDEOCASSETTE RECORDER

# V0-8800P

Revised 1



# SONY<sup>®</sup>

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## SERVICE MANUAL

# SPECIFICATIONS

## System

Recording system Rotary 4 heads (R/P: 2,  
Simultaneous playback: 2)  
helical scan  
Luminance: FM  
Chrominance: SC low-range  
conversion

Video signal system  
CCIR standards, PAL color

## Video

Inputs VIDEO IN (BNC type) × 1  
Composite, 1.0Vp-p ± 0.3Vp-p,  
75 ohms, unbalanced, sync  
negative  
CAMERA (Q type) × 1  
Composite, 1.0Vp-p ± 0.3Vp-p,  
75 ohms, unbalanced, sync  
negative  
Separated Y/C,  
Y: 1.0Vp-p ± 0.3Vp-p,  
75 ohms, unbalanced, sync  
negative  
C: burst level, 0.3Vp-p ± 0.09Vp-p,  
75 ohms, without, sync

Output VIDEO OUT (BNC type) × 1  
1.0Vp-p ± 0.2Vp-p, 75 ohms,  
unbalanced, sync negative

Horizontal resolution  
SP mode recording: 300 lines  
(both B/W and color)  
Conventional recording (high band):  
260 lines (both B/W and color)  
In the Y/C separation mode,  
SP mode recording: 330 lines  
conventional recording (high band):  
290 lines

S/N Color: More than 46 dB

Recording level control  
Automatic

## Audio

Inputs AUDIO IN CH-1/L/DUB, CH-2/R (XLR  
3-pin, female) × 1 each  
+4 dB/−20 dB/−60 dB  
switchable  
+4 dB: more than 10 kilohms,  
balanced  
−20 dB/−60 dB: more than  
3 kilohms, balanced  
CAMERA (microphone input) (audio  
channel 2) +4 dB/−20 dB/−60 dB  
switchable  
+4 dB: more than 10 kilohms,  
balanced  
−20 dB/−60 dB: more than  
3 kilohms, balanced

Outputs AUDIO OUT CH-1/L (MONITOR),  
CH-2/R (XLR 3-pin, male) × 1 each  
+4 dB (at 600-ohm load), balanced  
HEADPHONES (JM-60 headphones  
binaural jack)  
For 8-ohm headphones  
Level adjustable (from −40 to  
−20 dB)

S/N SP mode: More than 52 dB (at 3%  
distortion level without Dolby noise  
reduction)  
Conventional mode:  
More than 50 dB (at 3% distortion  
level)

## Frequency response

50 to 15,000 Hz  
Distortion 2% or less  
Recording level control  
Manual or AGC selectable

## Other functions

Simultaneous playback picture and tape remaining  
time indication Possible with a camera having the  
return video function  
Pause Possible  
Tracking control Possible  
Edit Assembly recording  
Audio dubbing  
Remote control Record, playback, fast forward,  
rewind, pause and stop, with an  
optional RM-770 remote control  
unit

## Tape transport

Tape speed 95.3 mm/sec.  
Wow and flutter less than ±0.2%p-p (DIN)  
Recording time 20 min. continuously with KSP-S20/  
KCS-20, 10 min. continuously  
with KSP-S10/KCS-10  
Fast forward and rewind time  
Within 3 minutes  
Operating time Approx. 1 hour continuously  
connected to a DXC-M7P camera,  
with two fully charged NP-1A  
batteries  
Tape compatibility U-matic video cassette tapes  
Usable tape KSP-S and KCS type tape

## Power and other requirements

Power requirements  
12V DC  
Power consumption  
17W  
Operating position Both vertical and horizontal  
Operating temperature  
0°C to 40°C (32°F to 104°F)  
Storage temperature  
−20°C to +60°C (−4°F to +140°F)  
Dimensions 263 × 130 × 354 mm (w/h/d)  
(10<sup>3</sup>/<sub>8</sub> × 5<sup>1</sup>/<sub>8</sub> × 14 inches) not incl.  
projecting parts and controls  
Weight Approx. 6.2 kg (13 lb 11 oz)  
Supplied accessories  
Operating Instructions (1)  
Shoulder strap (1)

• Design and specifications subject to change without  
notice.

## Optional accessories

RM-770 remote control unit  
BKU-706 time code generator  
NP-1A, NP-1 rechargeable battery pack  
BC-1WA battery charger  
VMC-1MQ cable for the video monitor equipped with an  
8-pin VTR connector  
CMA-8CE camera adaptor  
CCQX-2, CCQX-3 cable for the CMA-8CE camera adaptor  
KSP-S and KCS type video cassette  
KCS-1CL cleaning cassette  
Color video camera DXC-325P, DXC-1800P, DXC-1820P/1821P,  
DXC-3000P/3000AP, DXC-M3P/M3AP, DXC-M7P,  
BVP-300AP, BVP-330AP, BVP-150P  
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## SECTION 1

### GENERAL DESCRIPTION

#### 1 — 1. FEATURES

The VO-8800P is a compact U-matic video cassette recorder designed for portable use. Its SP (Superior Performance) design ensures clearer pictures than before that will satisfy the professional standards.

The major features of the VO-8800P are as follows:

##### **Small size and light weight**

The VO-8800P is designed not only for small size and light weight but also for operation in either a vertical or a horizontal position. When used together with a Sony color video camera, it is ideally suited for both outdoor and indoor recording.

##### **High quality picture ensured by the SP system**

Recording and playback using SP tapes specially designed for the SP (Superior Performance) system provide clearer and sharper pictures than before. Even higher quality of picture is ensured when you use a camera with Y/C separation capability to separately input Y and C signals to the VO-8800P. The recorder is provided with a mechanism which automatically detects separated Y/C inputs when the recorder is used together with a video camera capable of giving separated Y/C outputs.

##### **Hi-Fi sound and high recording/playback performance for sounds**

The Dolby NR (Noise Reduction) C type system offers you high quality of sound with reduced hiss noise when you use KCS-SP tapes. The audio input and output connectors used are 3-pin XLR connectors of the balanced type designed for use with professional audio equipment. The audio recording level can be adjusted both automatically and manually (an input audio level limiter is provided to act in manual adjustment).

##### **Devices for reliable camera recording**

###### **Video confidence**

While in camera recording using a camera with return video function, you can monitor on the camera's viewfinder the simultaneous playback picture (the picture which has just been recorded). This allows you to check if the recording has been made properly.

###### **Warning system**

When the tape comes to its end or the battery runs down, you will be alerted by the warning lamp and cursor blinking or getting lit. Simultaneously, an audible alarm will sound through the headphones. When using a camera equipped with a Sony Q type (14-pin) connector, the warning lamp in its viewfinder screen will blink in unison with the warning lamp on the VO-8800P.

###### **Indication of tape remaining time**

When recording with a camera having a return video button, you can check the tape remaining time on the camera's viewfinder screen.

###### **Easy replacement of battery**

The battery is replaceable easily and quickly.

###### **Editing capability**

###### **Smooth transition between scenes**

Video cassette programs can be composed shot-by-shot without any irregularities at scene changes because the quick playback servo system guarantees a clean cut every time.

###### **Assembly of two video sources**

Assembly of two video sources connected to the CAMERA and VIDEO IN connectors can be accomplished simply by changing the setting of the VIDEO CAMERA/LINE switch.

###### **Audio dubbing**

You can add a narration or music to tapes after recording.

###### **Other features**

###### **Time code recording/playback function**

When the optional time code generator BKU-706 is set in your unit, the EBU time code can be recorded on and played back from the address track of the tape.

###### **External sync system**

In the playback mode, the recorder will operate with an external sync system when the video signal is connected to the VIDEO IN connector.

###### **Adaptable for operation on DC or AC**

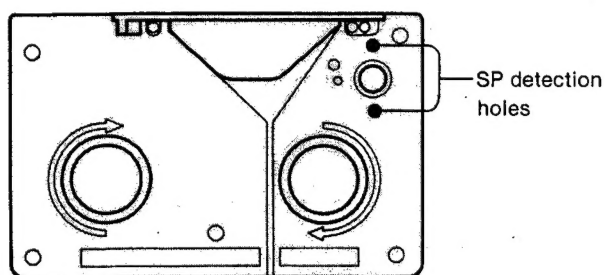
Use of Sony battery packs NP-1A (optional) is convenient for outdoor camera recording with the VO-8800P. You can also use AC power by connecting the recorder to an AC power source through the Sony camera adaptor CMA-8CE (optional).

## 1 - 2. NOTES ON VIDEO CASSETTE

The SP tapes which can be used with the VO-8800P are KSP-S20 and KSP-S10. As for conventional U-matic tapes, tapes of KCS series can be used.

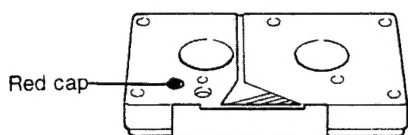
### U-Matic Cassette Tape of KSP-S Series

The KSP-S series cassette tapes with high durability have been developed for SP mode recording/playback and feature characteristics best suiting the SP system. They have detection holes in the bottom face of the cassette shell to automatically set U-matic SP VTRs to the SP mode recording.



### About the red cap in the bottom of a cassette

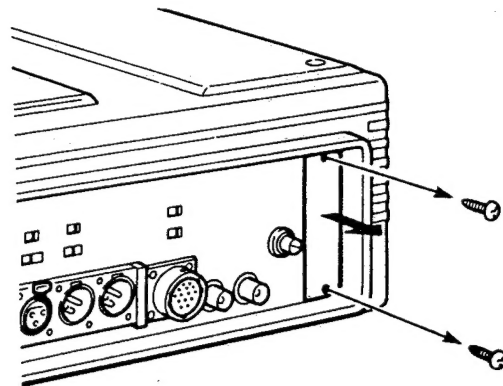
When you re-record on an already recorded tape, the original record will be erased. If you don't want lose the material recorded on a tape, remove the red cap on the bottom of its cassette. This will protect the tape against accidental erasure of the previous record even when the VTR's REC button is pressed. Before you start recording, always make sure that the red cap is in place on the bottom of a cassette you are going to use. If a cassette with no red cap is inserted, you cannot get an E-to-E mode picture on the monitor screen or camera's viewfinder.



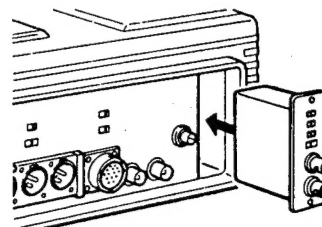
## 1 - 3. TIME CODE GENERATOR INSTALLATION AND SETTING

If you use the BKU-706 time code generator (optional), you can record time codes (LTC and user bits) and see the recorded time codes on the monitor screen.

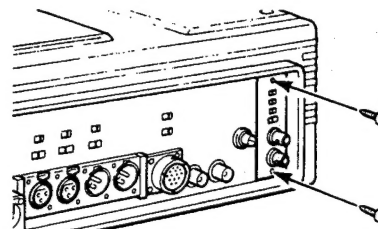
- 1) Remove the cover of the VO-8800P.



- 2) Insert the BKU-706 into the VO-8800P until the card edge connectors connect firmly.



- 3) Secure the BKU-706 with the screws removed in step 1.

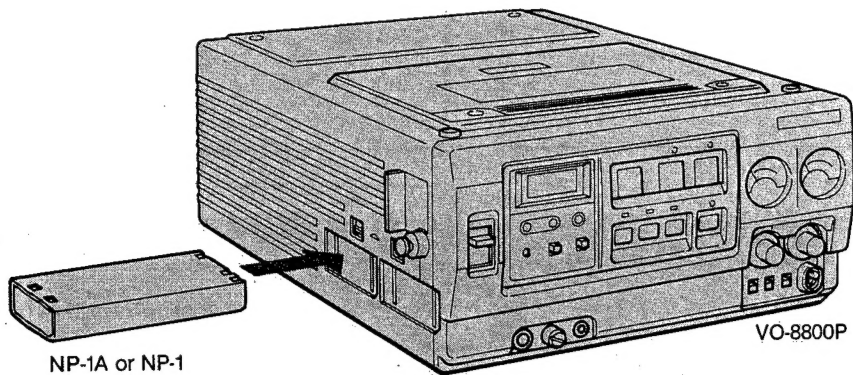


## 1 - 4. POWER SOURCES

The VO-8800P can be operated either with DC or AC power supply

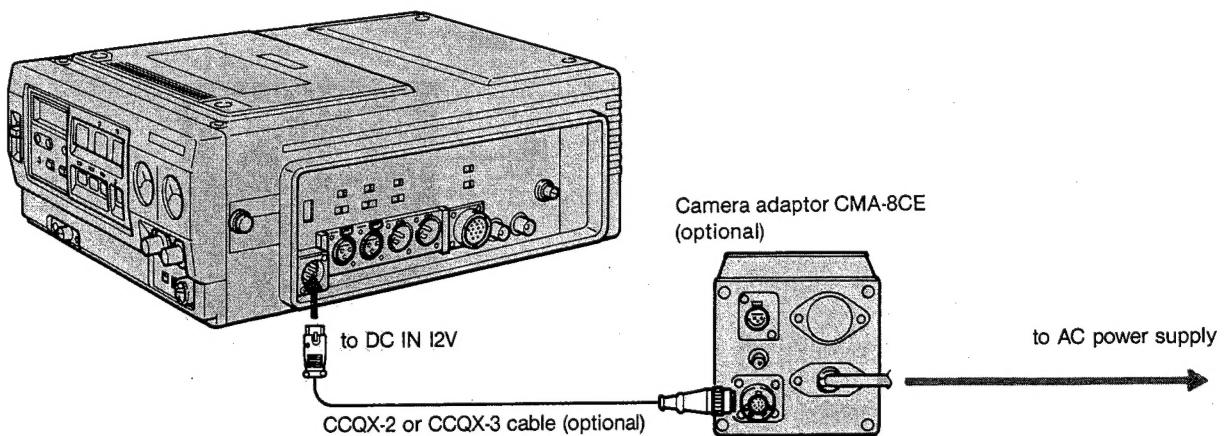
### Battery Operation

- Set one or two NP-1A or NP-1 rechargeable battery packs (optional) in the battery compartment(s).
- To remove the battery pack, push up the button located just above the battery compartment.



### AC Power Operation

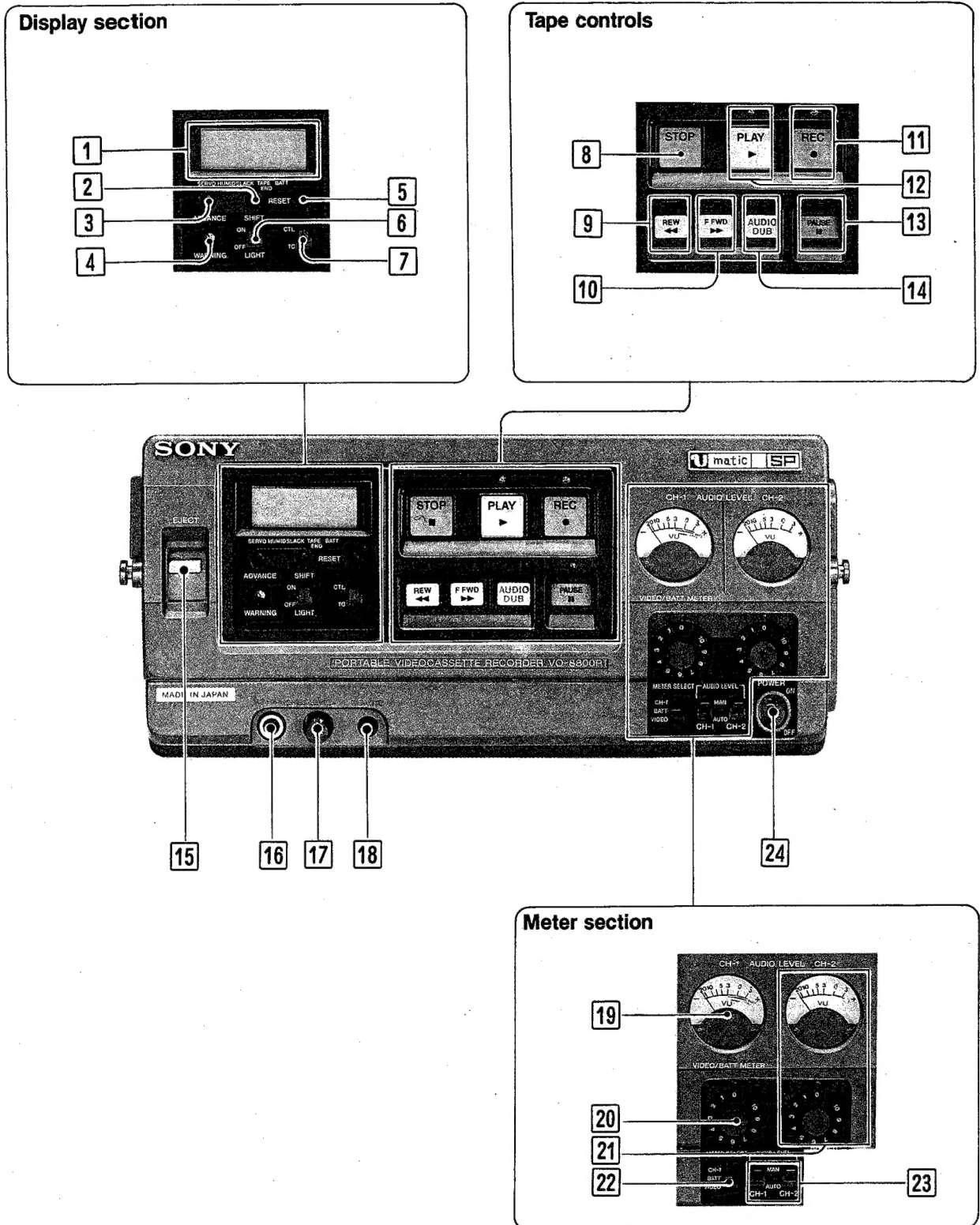
- Connect the CMA-8CE camera adaptor (optional) as illustrated.
- When the plug is connected to the DC IN 12V connector, power supply from the battery will be automatically disconnected.





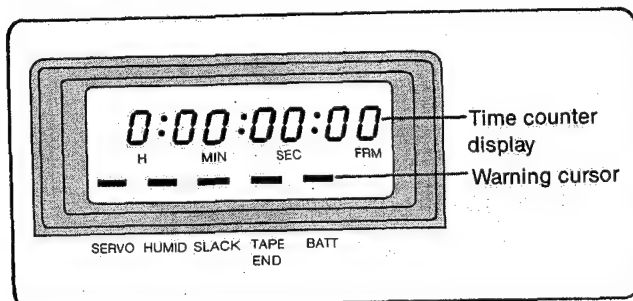
# 1 - 5. FUNCTION AND LOCATION OF PARTS AND CONTROLS

## CONTROL PANEL

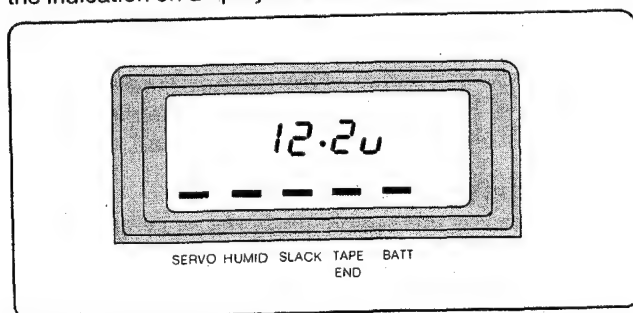


## Display section

### 1 Display window



The time counter display indicates the time code, tape running time calculated by counting the CTL signals, and the voltage of power supply. Any of these indications is selectable with the CTL/TC selector [7] or METER SELECT switch [22]. When the METER SELECT selector is set to BATT, however, the indication is fixed to power supply voltage. The voltage indication range is from 11.0V to 13.2V (at minimum increments of 0.2V). For example, if the battery voltage is 12.2 V, changing the position of the METER SELECT switch to BATT will change the indication on display as shown below.



When the actual voltage goes beyond the range, the indication stays at the marginal value (11.0V or 13.2V) and blinks.

A cursor associated with a warning indication indicates the operating status of the VO-8800P.

**SERVO:** Blinks when the drum servo or capstan servo is not locked.

**HUMID:** Lights when moisture has been condensed on the head drum.

**SLACK:** Blinks when the tape is slack on the take-up side of the tape transport system or when the VO-8800P detects that the drum has stopped rotating.

**TAPE END:** Starts blinking about 1.5 minutes before the end of the tape during recording. The cursor will stay lit when the tape comes to its end.

**BATT:** Starts blinking when the voltage supplied by the battery falls to 11.45V, indicating that the battery is almost run out. When the voltage falls to 11V, the cursor will light steadily, and the tape will automatically stop.

- For further details, refer to the "Warning System."

### 2 SHIFT button

Can work only when the BKU-706 time code generator (optional) is set in the recorder.

When one of the time code digits blinks in the time counter display, indicating that now you can set the time code to the desired value, pressing this button makes the blinking digit stop blinking, and makes the digit to the right of that digit start blinking. For the time code setting procedure, refer to the operation manual for BKU-706 time code generator.

### 3 ADVANCE button

Can work only when the BKU-706 time code generator (optional) is set in the recorder.

Each press of this button increases the value of the blinking digit in the displayed time code by one. Refer to the operation manual for the BKU-706 time code generator.

### 4 WARNING lamp

Lights up or blinks when something wrong or undesirable has happened with your recorder. For details refer to "Warning System".

### 5 RESET button

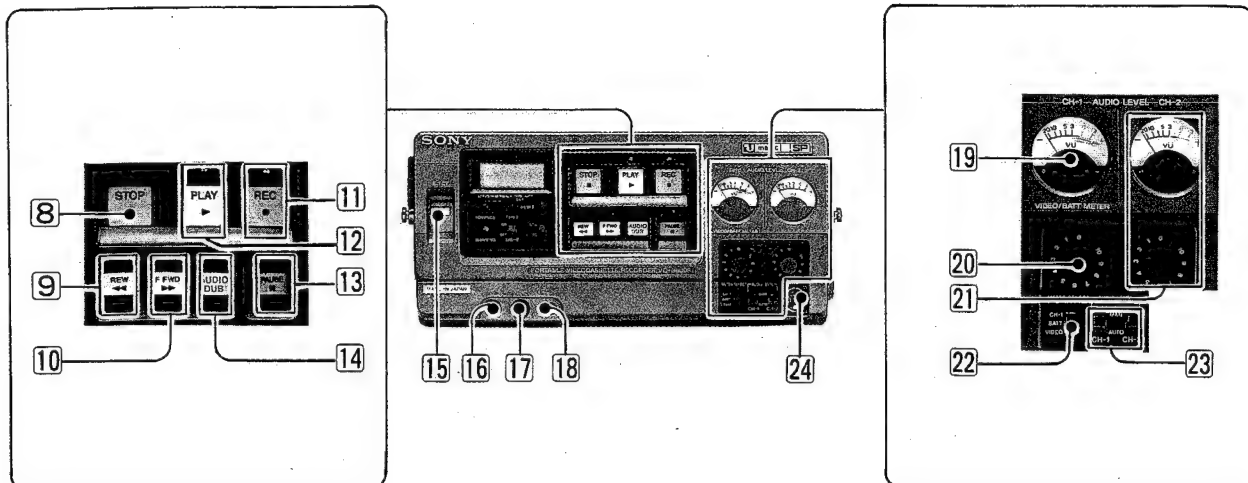
With the METER SELECT switch [22] being set to CH-1 or VIDEO, the current CTL indication in the counter display can be reset by pressing this button.

### 6 LIGHT switch

Set the switch to ON to illuminate the display window [1] and level meters [19] [21]. Set the switch to OFF to turn off the illumination.

### 7 CTL/TC selector

Switches the display in the counter display. Set the switch to CTL for tape running time calculated by counting the CTL signals or to TC for time code. If the BKU-706 time code generator (optional) has not been set in the recorder, the tape running time will always be displayed even when the CTL/TC selector is set to TC. If the METER SELECT switch [22] is set to BATT, the supply voltage will always be displayed regardless of the setting of this switch.



## Tape Controls

### 8 STOP ■ button

Press this button to stop the tape.

### 9 REW ◀◀ (rewind) button/lamp

Press to rewind the tape; the lamp lights. The high-speed reverse playback picture with guard band noise can be seen during rewinding (picture search). When the tape is rewound all the way, the recorder will automatically stop.

### 10 F FWD ▶▶ (fast forward) button/lamp

Press to advance the tape rapidly; the lamp will go on. The high-speed playback picture with guard band noise can be seen on the viewfinder of the camera or on the video monitor (picture search). When the tape is wound all the way, the recorder will automatically stop.

### 11 REC ● (record) button/lamp

While pressing this button, press the PLAY button 12 to start a recording of the input video signal. The lamp will blink during the recording. If only this button is pressed with the unit in the stop mode, the E-to-E mode picture will be displayed on the video monitor or in the camera's viewfinder.

In the fast forward, rewind or playback mode, the E-to-E mode picture can be monitored while this button is pressed.

### 12 PLAY ▶ button/lamp

Press to play back the tape. For recording, press this button while pressing the REC button 11. For audio dubbing, press this button while pressing the AUDIO/DUB button 14.

### 13 PAUSE ■■ button/lamp

Press to momentarily stop the tape in the record or playback mode. The lamp will blink during the pause mode. Press this button again to release the pause mode. During the playback pause mode, a still picture will be displayed.

- If camera recording was started by pressing the VTR start/stop button of the camera, the PAUSE button will be disabled. To stop the recording, press the VTR start/stop button of the camera.

### 14 AUDIO/DUB button/lamp

While pressing this button, press the PLAY button 12 to record audio signal on audio channel 1. When this button alone is pressed, the recorder will be set to the audio channel E-to-E mode, which allows you to make audio recording level adjustments before starting audio dubbing.

### 15 EJECT lever

Press down to raise the cassette compartment. The function of this lever is executed with priority over the function of any of the tape control buttons.

### 16 HEADPHONES jack (JM-60 headphones binaural jack)

Connect 8-ohm headphones for audio monitoring. The sound selected by the CH-1/MIX/CH-2 selector on the connector panel will be heard. If the WARNING lamp is lit or blinks, a beep will sound in the headphones.

### 17 LEVEL control

Adjust the headphones level with this control.

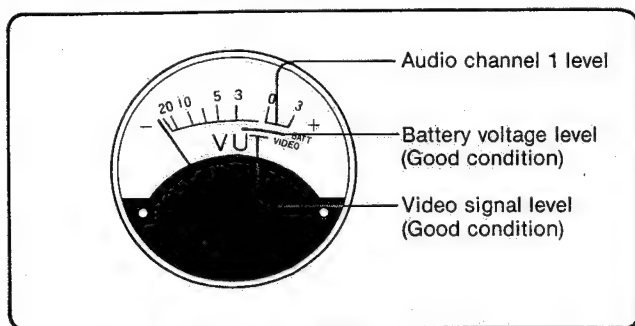
### 18 REMOTE jack (special mini jack)

Connect an RM-770 remote control unit (optional).

## Meter Section

### 19 CH-1/VIDEO/BATT METER

Indicates the audio channel 1 recording level, input video signal level or battery voltage. Change display using the METER SELECT switch 22.



### 20 CH-1 level control

Use this control to manually adjust the audio channel 1 recording level.

### 21 CH-2 level meter and control

Use this control to manually adjust the audio channel 2 recording level.

### 22 METER SELECT switch

Selects display on the CH-1/VIDEO/BATT METER 19.

**CH-1:** Audio channel 1 recording level

**BATT:** Battery voltage (can also be displayed on the Display window 1.)

**VIDEO:** Video recording level

### 23 AUDIO LEVEL MAN/AUTO selector

Selects automatic or manual adjustment of the audio recording level.

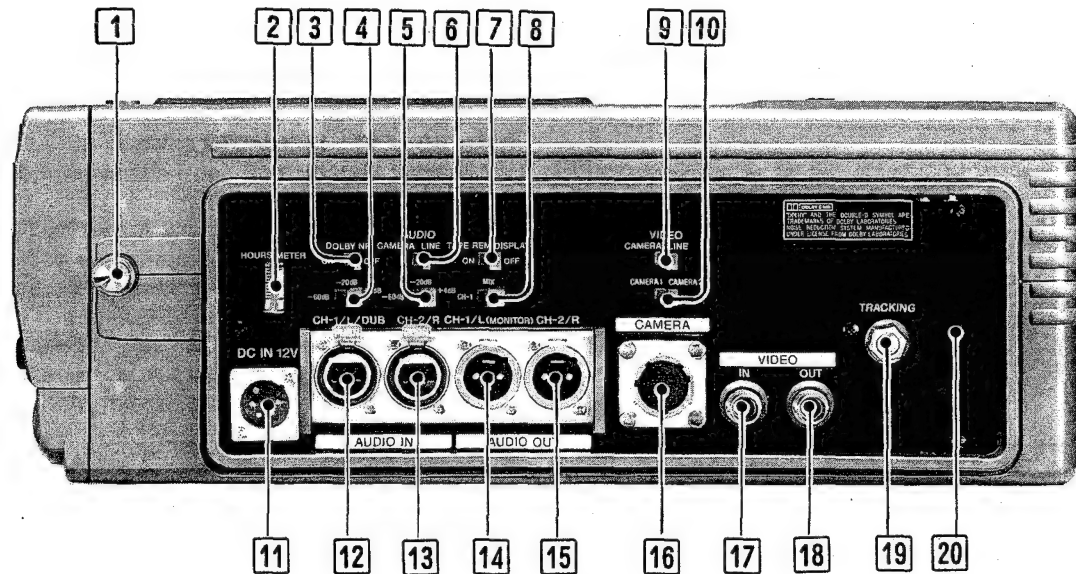
**MAN:** For manual adjustment. An excessive input that may be encountered during manual adjustment is blocked by a limiter to minimize distortion at the peaks.

**AUTO:** For automatic adjustment. The automatic gain control circuit will be activated to regulate the audio level to assure optimum recording.

### 24 POWER switch

Turns ON or OFF the power. When the power is turned on, time code, tape running time, or battery voltage will be displayed in the display window.

## CONNECTOR PANEL



**1 Strap lug**

**2 HOURS meter**

Calculates and indicates the hours the recorder has been in service. (One division represents 100 hours.)

**3 DOLBY NR (Dolby noise reduction) switch**

Use this switch to turn ON or OFF the Dolby NR system when recording or playing back with KSP-S tape.

**4 -60dB/-20dB/+4dB (audio channel 1 input level) selector**

Set this selector according to the audio output level of the audio source connected to the AUDIO IN CH-1/L/DUB connector **12**.

**5 -60dB/-20dB/+4dB (audio channel 2 input level) selector**

Set this selector according to the audio output level of the audio source connected to the AUDIO IN CH-2/R connector **13** (with the AUDIO CAMERA/LINE selector **6** being set to LINE), or that of the microphone built in or connected to a camera connected to the CAMERA connector **16** (with the AUDIO CAMERA/LINE selector **6** being set to CAMERA).

**6 AUDIO CAMERA/LINE selector**

Selects the connector to be used for inputting a signal to audio channel 2.

**CAMERA:** To use the CAMERA connector

**LINE:** To use the AUDIO IN CH-2/R connector

**7 TAPE REM DISPLAY switch**

With this switch being set to ON, you can get, while in camera recording using a camera with return video capability, a display of tape remaining time on the camera's viewfinder by pressing the return video button on the camera.

**8 CH-1/MIX/CH-2 selector**

Selects audio output from the HEADPHONES jack on the control panel or the AUDIO OUT CH-1/L (MONITOR) connector **14** on the connector panel.

**CH-1:** Audio output from audio channel 1

**MIX:** Mixed audio output from channels 1 and 2

**CH-2:** Audio output from audio channel 2

**9 VIDEO CAMERA/LINE selector**

When video signals are being input to both the CAMERA connector [16] and VIDEO IN connector [17], select the signal to be recorded using this selector.

**CAMERA:** To record the video signal connected to the CAMERA connector

**LINE:** To record the video signal connected to the VIDEO IN connector

When a video signal is input to either the CAMERA or VIDEO IN connector only, that signal will always be recorded regardless of the setting of the selector.

**10 CAMERA 1/CAMERA 2 selector**

Select the position of this selector depending on the video source to be connected to the CAMERA connector [16].

**CAMERA 1:** To connect a DXC series camera or a video monitor with an 8-pin connector

**CAMERA 2:** To connect a BVP series camera or a camera with SAVE function (for saving battery power)

**11 DC IN 12V connector (XLR, 4-pin)**

You can operate the VO-8800P with AC power supply by connecting a CMA-8CE camera adaptor (optional) to this connector using a CCQX-2 or CCQX-3 cable (optional).

**12 AUDIO IN CH-1/L/DUB connector (XLR, 3-pin)**

Connect a microphone or an audio line input source for the recording of the audio channel 1 or for audio dubbing.

**13 AUDIO IN CH-2/R connector (XLR, 3-pin)**

Connect an audio source for recording of audio channel 2. When the microphone incorporated in the camera is to be used as the audio source, connect the camera to the CAMERA connector [16] and set the AUDIO CAMERA/SELECTOR [6] to CAMERA.

**14 AUDIO OUT CH-1/L (MONITOR) connector (XLR, 3-pin)**

Outputs the audio signal selected by the CH-1/MIX/CH-2 selector [8].

**15 AUDIO OUT CH-2/R connector (XLR, 3-pin)**

Outputs the audio signal of channel 2.

**16 CAMERA connector (Q, 14-pin)**

Connect a Sony color video camera or video monitor. A color video camera with Q type connector can be directly connected to this connector. Use a VMC-1MQ cable (optional) to connect a video monitor having an 8-pin connector.

**17 VIDEO IN connector (BNC)**

Connect a composite video signal. When the VIDEO CAMERA/LINE selector is set to LINE, the signal connected to this connector can be recorded.

**18 VIDEO OUT connector (BNC)**

Outputs composite video signal. Connect the video input connector of a video monitor or another VTR.

**19 TRACKING control**

If tracking deviation occurs during playback of a tape recorded by another VTR, adjust this control. (Tracking deviation causes horizontal stripes or noise to appear in the playback picture.)

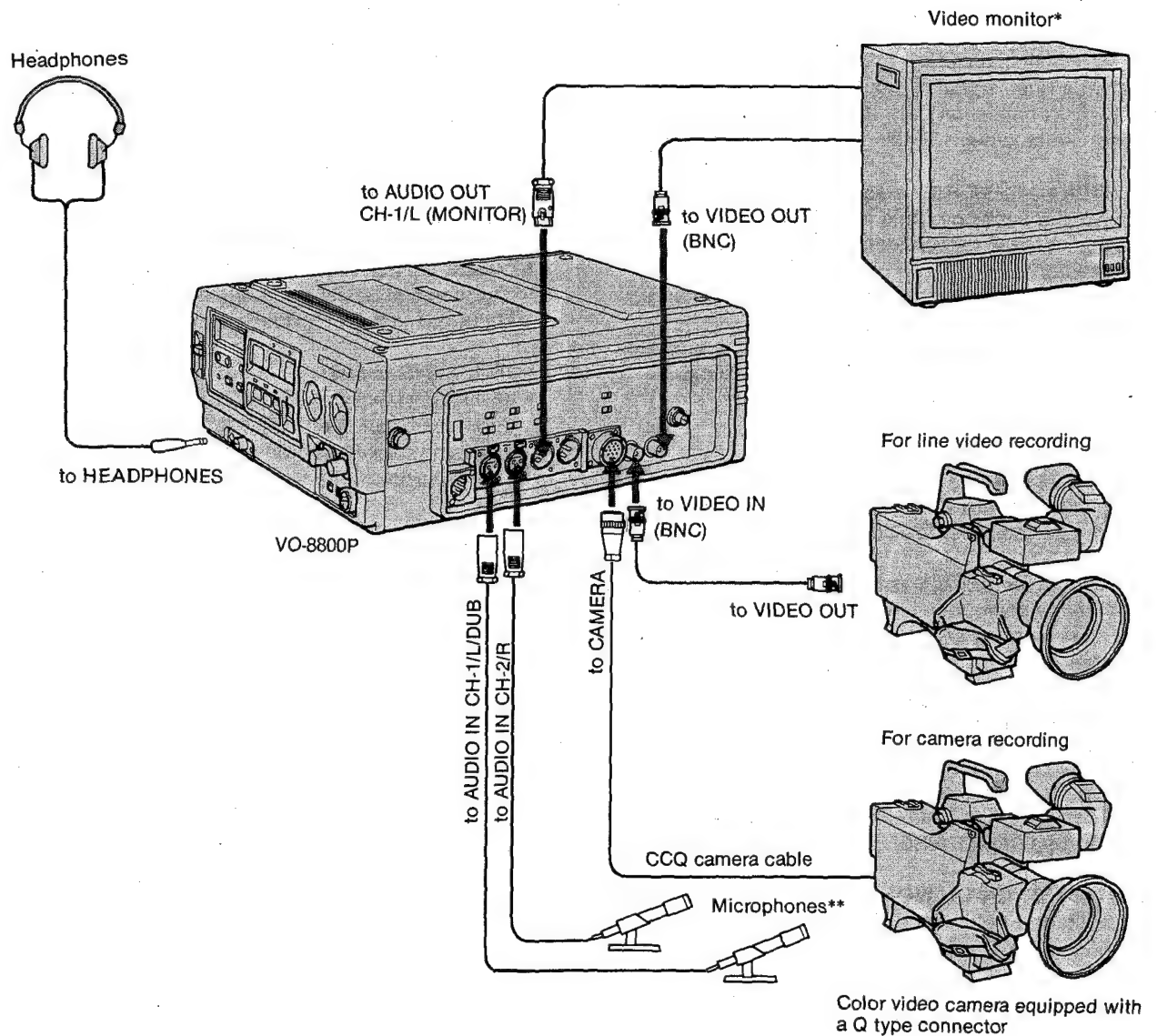
**20 Time code generator compartment**

To record a time code on the tape, set a BKU-706 time code generator (optional) in this compartment. For the time code recording procedure, refer to the operation manual for the BKU-706 time code generator.



## 1 - 6. CONNECTIONS

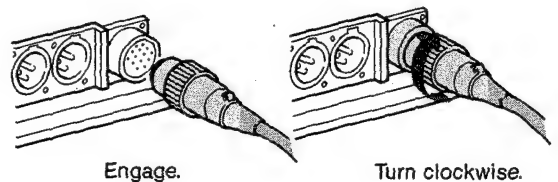
### 1 - 6 - 1. Camera Recording



\* The video monitor is not always necessary for camera recording.

\*\* The microphones are not always necessary when using a video camera with Q type connector. However, when using a camera connected to the VIDEO IN connector, at least one microphone is necessary if you want to record the sound, too, on the spot.

#### How to connect to the CAMERA connector





### E-to-E (Electric to Electric) mode

When the VTR is in this mode, the video and audio input signals having passed through the VTR's circuits are supplied from the output connectors. You can use this mode to adjust the audio level, warm up the camera, and determine the camera angle.

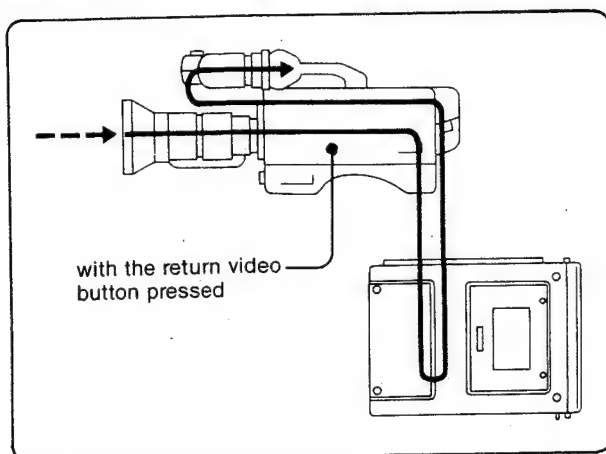
### Pause operation

To temporarily stop the tape during camera recording, press the VTR start/stop button of the camera or the PAUSE ■■ button of the VTR. If you started recording by pressing the VTR start/stop button of the camera, you can temporarily stop only by pressing again the same button. That is, the VTR's PAUSE ■■ button won't work in that case. When the VTR is in the pause mode, the PAUSE lamp above its PAUSE ■■ button will blink. The E-to-E mode signal will remain displayed on the monitor connected to the recorder. To release the pause mode, press again the camera's VTR start/stop button or the VTR's PAUSE ■■ button.

- When the VTR is kept in the pause mode for about eight minutes, the tape will be automatically de-tensioned around the head drum for protection of both tape and heads.

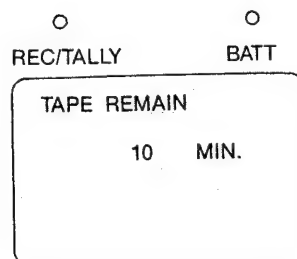
### To check the video signal being recorded (simultaneous playback picture)

When you use a camera with return video capability, you can monitor the picture just being recorded (simultaneous playback picture) on the camera's viewfinder. To do so, keep pressing the return video button to let the camera receive the signal sent back from the VTR. (See the figure below.) This allows you to check if recording is being properly performed. At the same time, you will get a display of tape remaining time if you have set the TAPE REM DISPLAY switch to ON.



### Indication of tape remaining time

During recording, you can get a display of tape remaining time on the simultaneous picture in the viewfinder as long as you keep pressing the camera's return video button.



Indications on viewfinder	15 MIN	10 MIN	7 MIN	5 MIN	4 MIN	3 MIN	2 MIN	1 MIN	TAPE BEFORE END
Tape remaining time (min.)	20	15	10	7	5	4	3	2	1.5

\* Tape remaining time is not indicated any more.

### When using the camera for line video recording (the camera connected to the VIDEO IN connector)

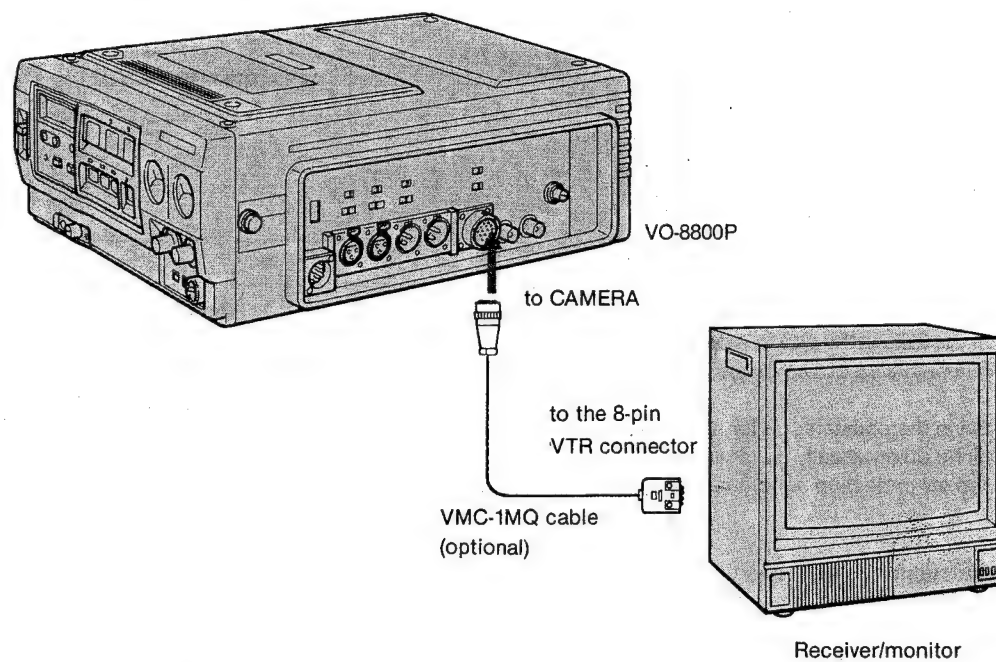
- The VTR start/stop button on the camera does not function. Use the VTR's buttons to start and temporarily stop the recording.
- The tally lamp on the camera will not go on.
- You cannot see any simultaneous playback picture (return video signal) in the viewfinder screen.

### Time code recording

If you set the BKU-706 time code generator (optional) in the time code generator compartment, you can record time codes (LTC and user bits) and see the recorded time codes on the monitor screen. For details on the connection of the BKU-706 and the data setting procedure, refer to the operation manual for the BKU-706.

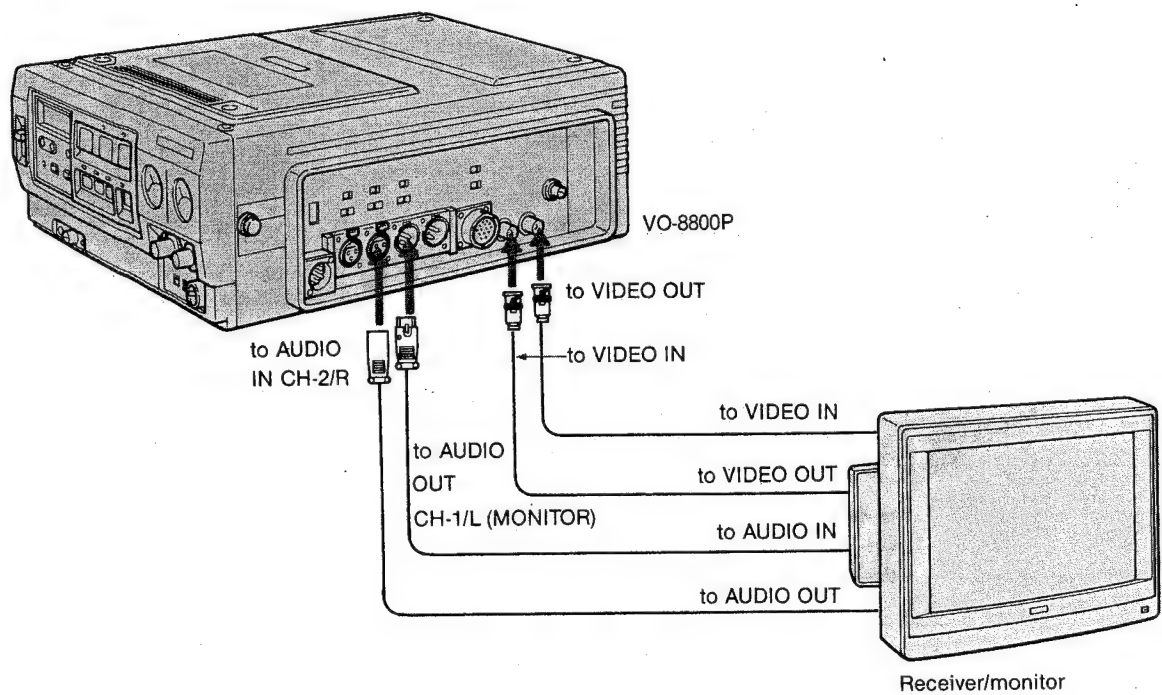
## 1 - 6 - 2. Recording TV Programs

When using a receiver/monitor equipped with an 8-pin connector



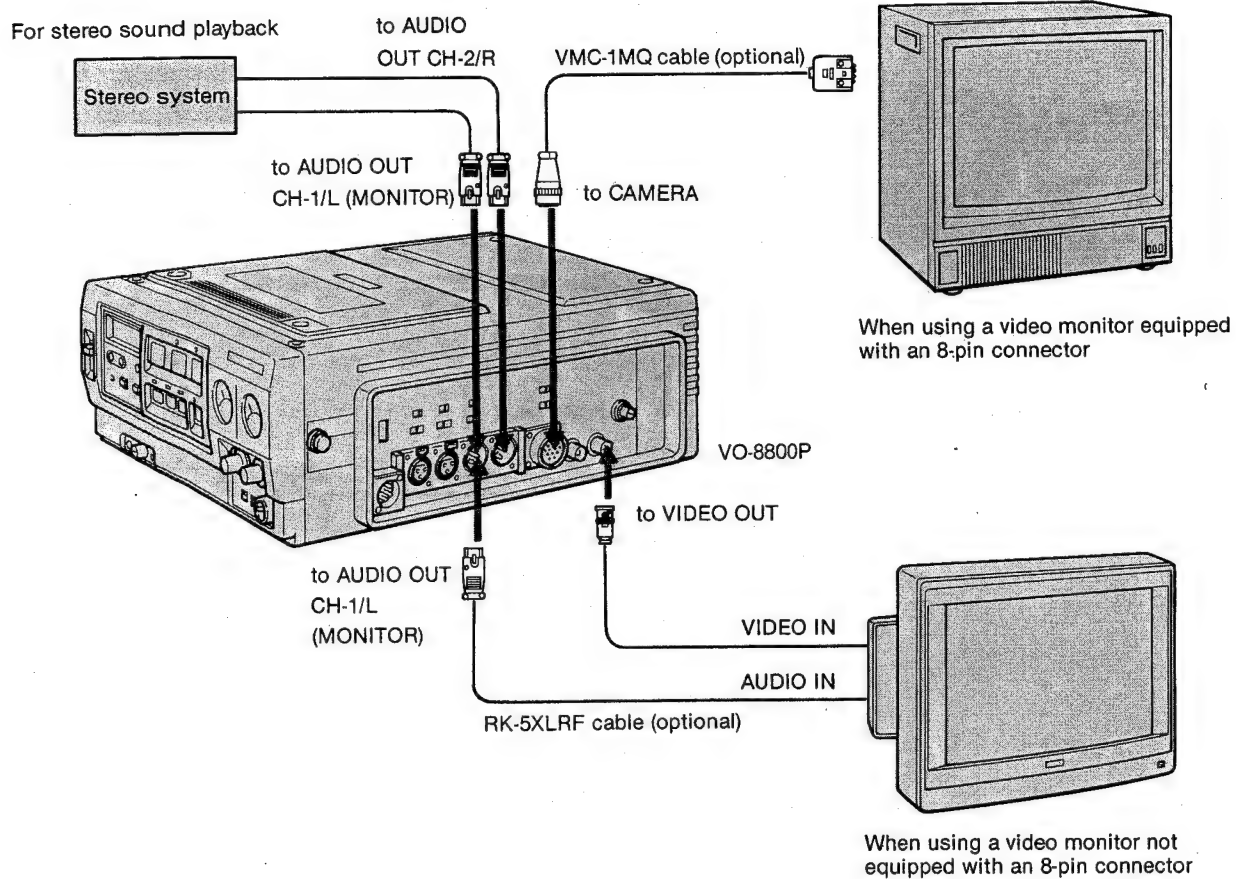
- Set both of the AUDIO and VIDEO CAMERA/LINE selectors to CAMERA.
- Set the CAMERA1/CAMERA2 selector to CAMERA1.
- Set the input selector of the video monitor to VTR.

When using a receiver/monitor not equipped with an 8-pin connector



- Set both of the AUDIO and VIDEO CAMERA/LINE selectors to LINE.
- Set the input selector of the video monitor to LINE.

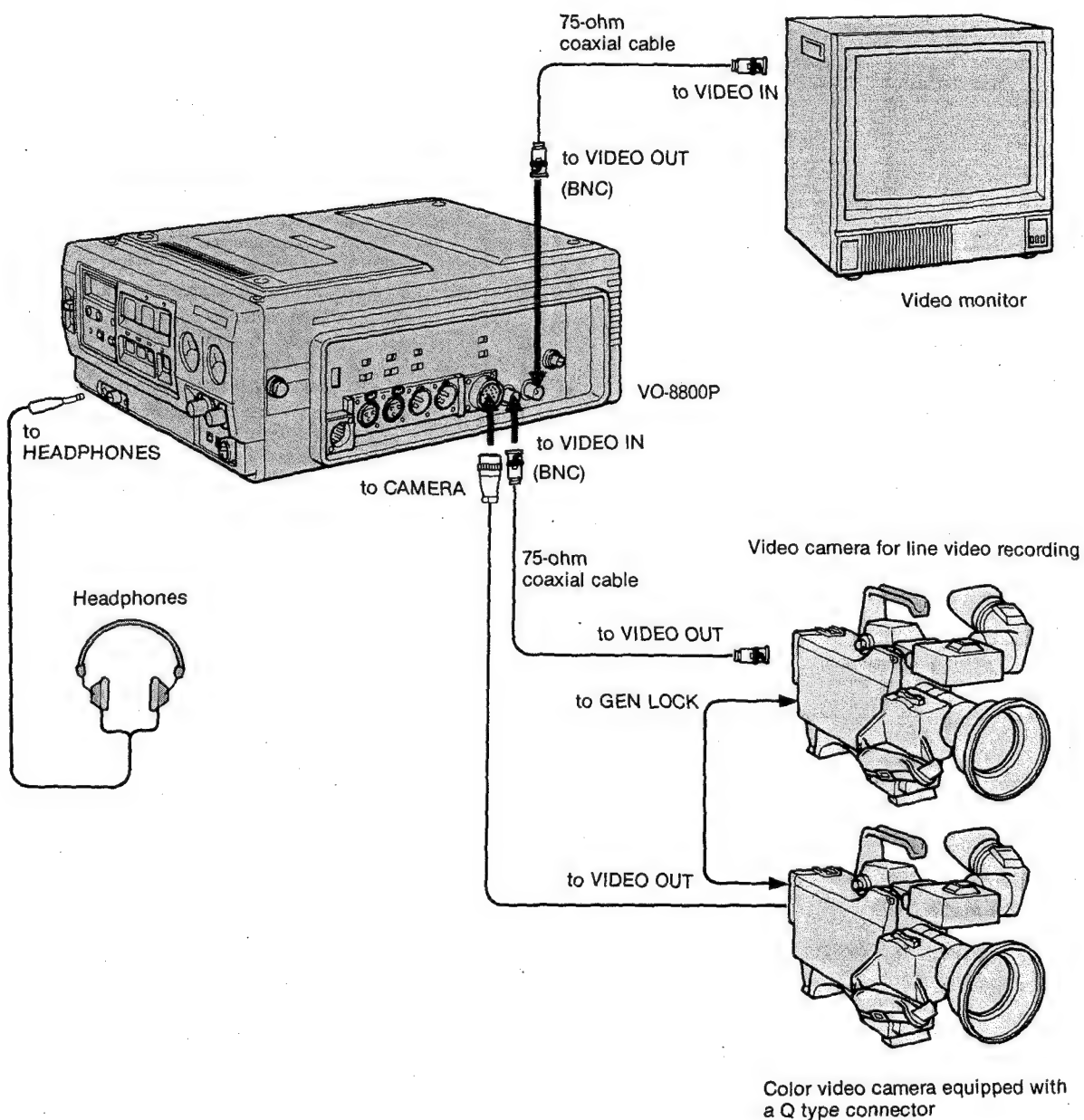
### 1 - 6 - 3. Playback



## 1 - 6 - 4. Editing
























### Assembly Recording

With two video sources connected to the CAMERA and VIDEO IN connectors, you can assemble pictures from those sources by switching between them with the VIDEO CAMERA/LINE selector. This section explains assembly recording by supposing two video cameras (A and B) to be used as the video sources.









## 1 – 7. WARNING SYSTEM

The warning cursors and lamp, headphones tone and tally lamps of camera (with Q type connector) serve to advise you of the VTR status indicated in the table below. In the rightmost column are described the corresponding tape transport status and resulting influences especially on the recording function. In general, if the tape transport stops, the currently chosen function of the VTR cannot be performed any more whatever mode it may have been in. Actions you need to take in such case are also indicated in the same column.

Warning cursors	Warning cursors/lamp	Headphones tone	VTR status	Camera tally lamps		Tape transport status/Necessary action
				REC/TALLY	BATT*1	
<b>SERVO</b>	 (In all modes)	 (In record mode)	Irregularity in servo	 (In record mode)		Tape transport doesn't stop, but recording may not be performed correctly. Check the connections.
<b>HUMID</b>	 (In all modes)		Moisture condensation			The VTR keeps recording except when the tape sticks to the head drum. If sticking of tape does happen or the VTR has been in other mode than record mode, it enters into pause mode. Push down the EJECT lever to remove the cassette.
<b>SLACK</b>	 (In all modes)		Tape slack			Tape transport stops and the VTR doesn't record any more. Push down the EJECT lever and remove the cassette. If the cassette compartment won't rise, consult Sony's service personnel without turning off the power.
<b>TAPE END</b>	 (In record mode)		Near end	 (In record mode)		Tape transport continues operate, and if having been in record mode the VTR keeps recording.
	 <sup>*2</sup> (In all mode)	 <sup>*2</sup>	Tape end	 <sup>*2</sup>		Tape transport stops, and the VTR cannot record any more. Replace the cassette with another.
<b>BATT</b>	 (In all modes)	 (In record mode)	Near end			Tape transport continues to operate, and if having been in record mode the VTR keeps recording.
	 (In all modes)		Discharge			Tape transport stops, and the VTR cannot record any more. Replace the batteries with fully charged ones.

### Meaning of the marks

Warning cursors/lamp	Warning tone
 Blinks at 4 Hz	 1 second interval
 Blinks at 1 Hz	 1/4 second interval
 Lights up	 Continuous tone

\*1 The BATT lamp of the camera blinks when the battery of the VTR or the camera is exhausted.

\*2 When recording stops, the warning cursor, lamp and tone go out.

### Notice on moisture condensation

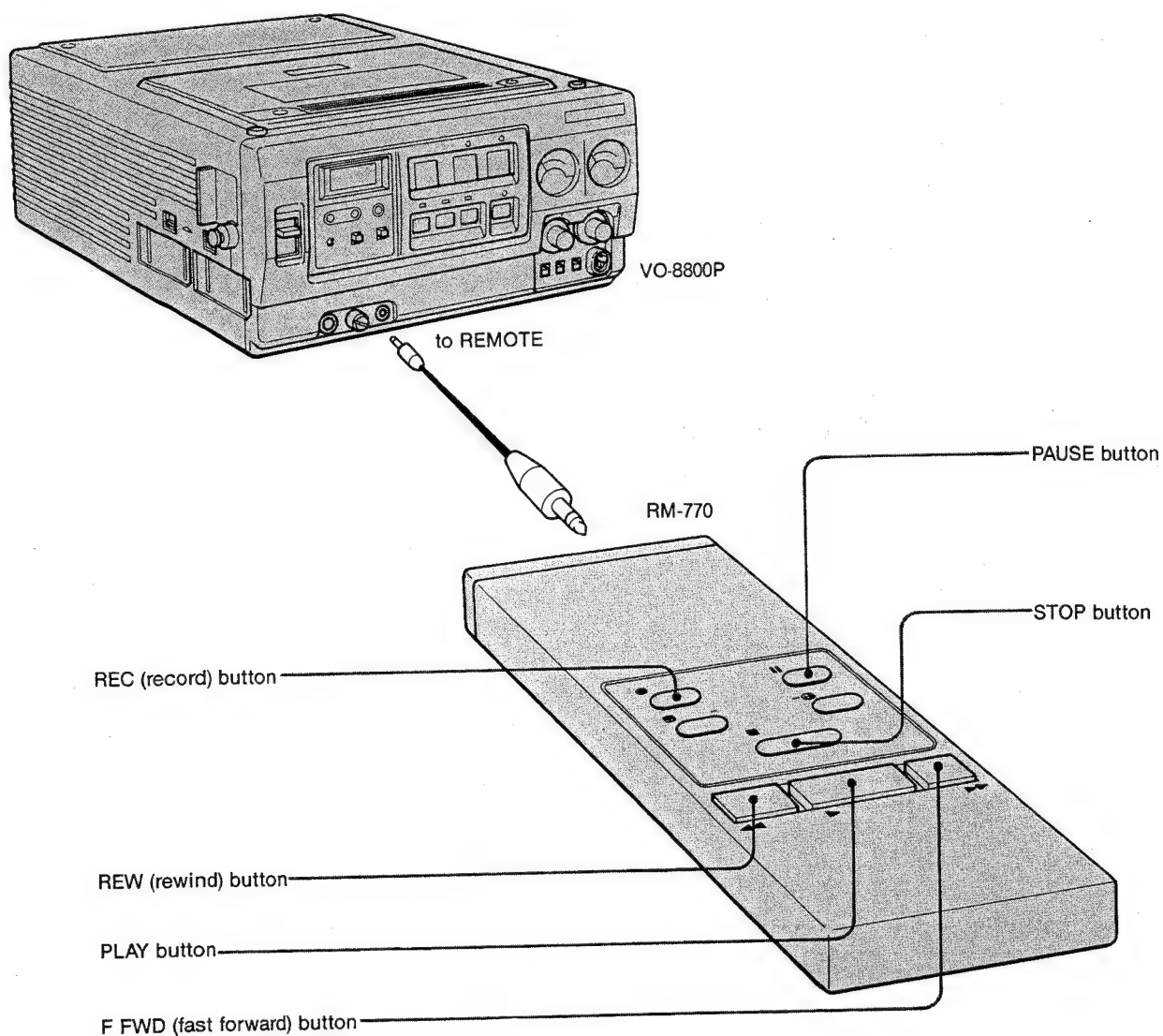
If the VTR is moved directly from a cold to a warm place or used in a very humid place, moisture contained in the air may condense on the drum assembly. This may result in damage to the tape when it adheres to the head drum.

To avoid this, take the following precautions.

- When you move the VTR from a cold to a warm place directly, be sure to remove the cassette.
- Before inserting a cassette, set the POWER switch to ON and check that the HUMID cursor does not appear. If it appears, do not insert a cassette. Turn off the power and wait until the HUMID cursor does not appear when the power is turned on.
- If moisture has condensed in the VTR with a cassette inserted, proceed as follows: If the power is off, set the POWER switch to ON. Press the EJECT button to remove the cassette. Turn off the power and wait until the HUMID cursor does not appear when the power is turned on.

## 1 - 8. REMOTE CONTROL

The VO-8800P can be remotely controlled from an optional RM-770 remote control unit. The function buttons of the unit correspond to those on the recorder.



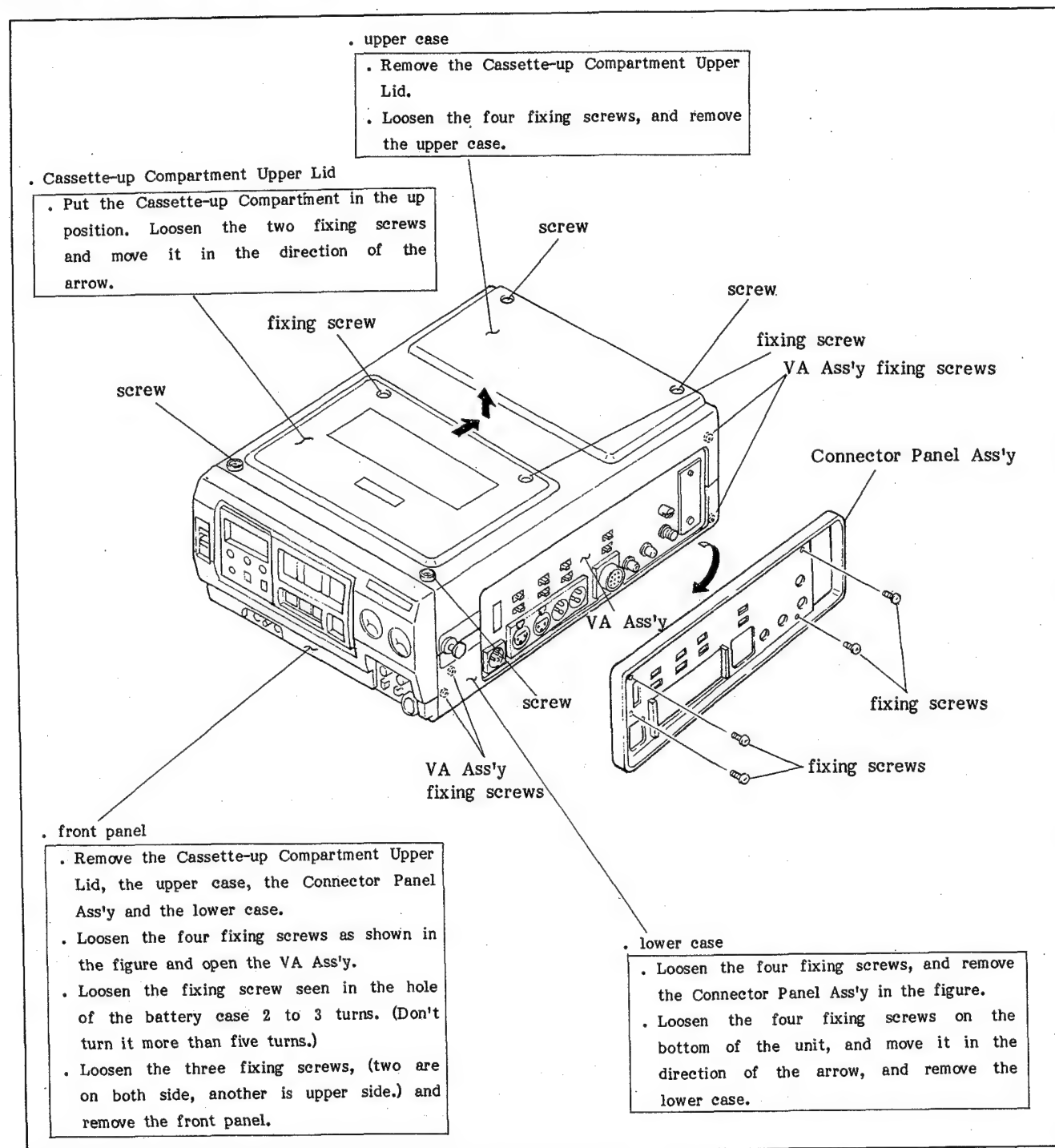
### Notes

- The RM-770 cannot control the VTR without a remote control cable.
- The SEARCH-REV (reversed) and SEARCH-FWD (forward) buttons on the RM-770 cannot be used with the VO-8800P.



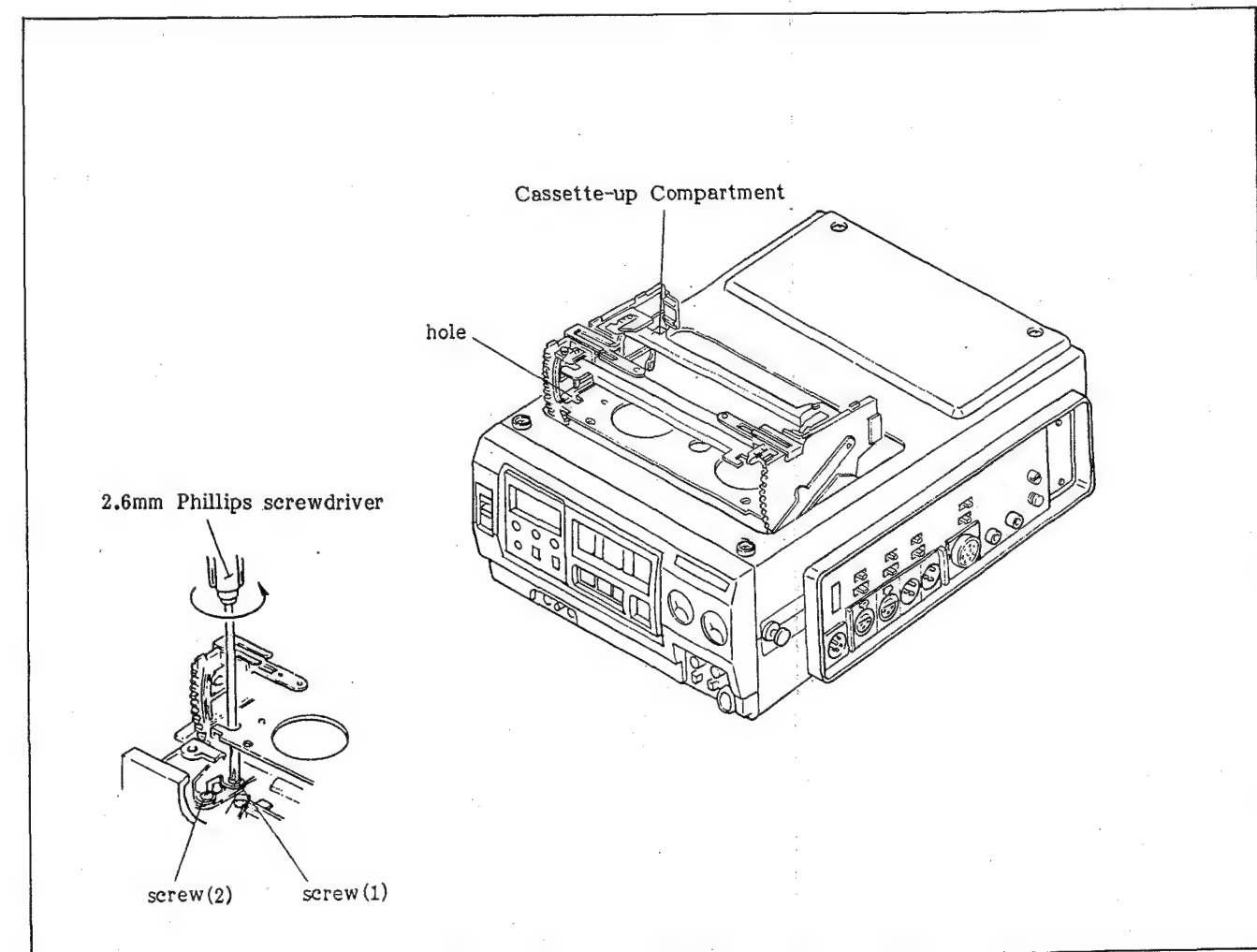
## SECTION 2 SERVICE INFORMATION

### 2-1. REMOVAL OF THE CABINET



### 2-2. CASSETTE-UP COMPARTMENT REMOVAL PROCEDURES

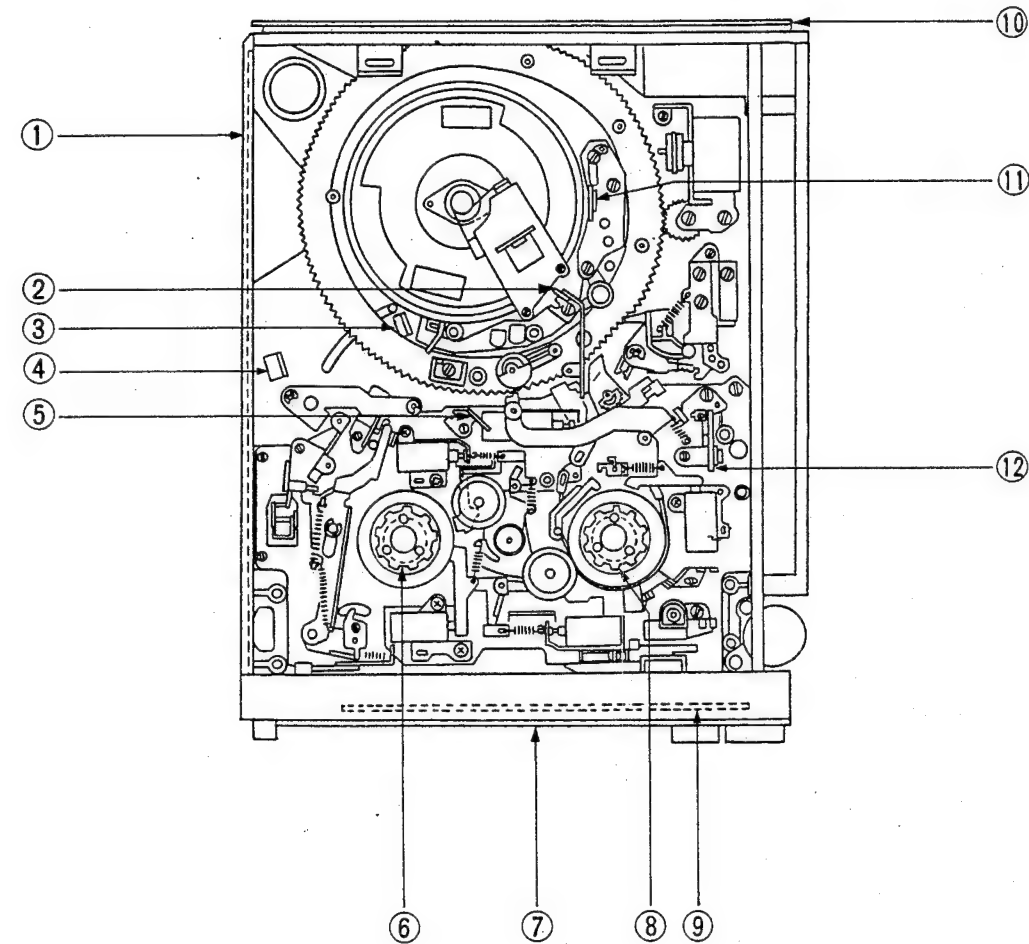
- (1) Remove the Cassette-up Compartment Upper Lid. (Refer to Section 2-1.)
- (2) Put the Cassette-up Compartment in down position.
- (3) Insert a phillips screwdriver into the left side hole of the Cassette-up Compartment, as shown in the figure, and loosen the fixing screw (1) as shown in the detailed view. The fixing screws can not be detached since they uses retainers on the Cassette-up Compartment.
- (4) Loosen the fixing screw (2), as shown in the detailed view.
- (5) Loosen the right side fixing screws in the same manner.
- (6) Press the EJECT button and put the Cassette-up Compartment in the up position. Remove the Cassette-up Compartment with the EJECT button pressed.



## 2-3. MAIN PARTS LOCATION

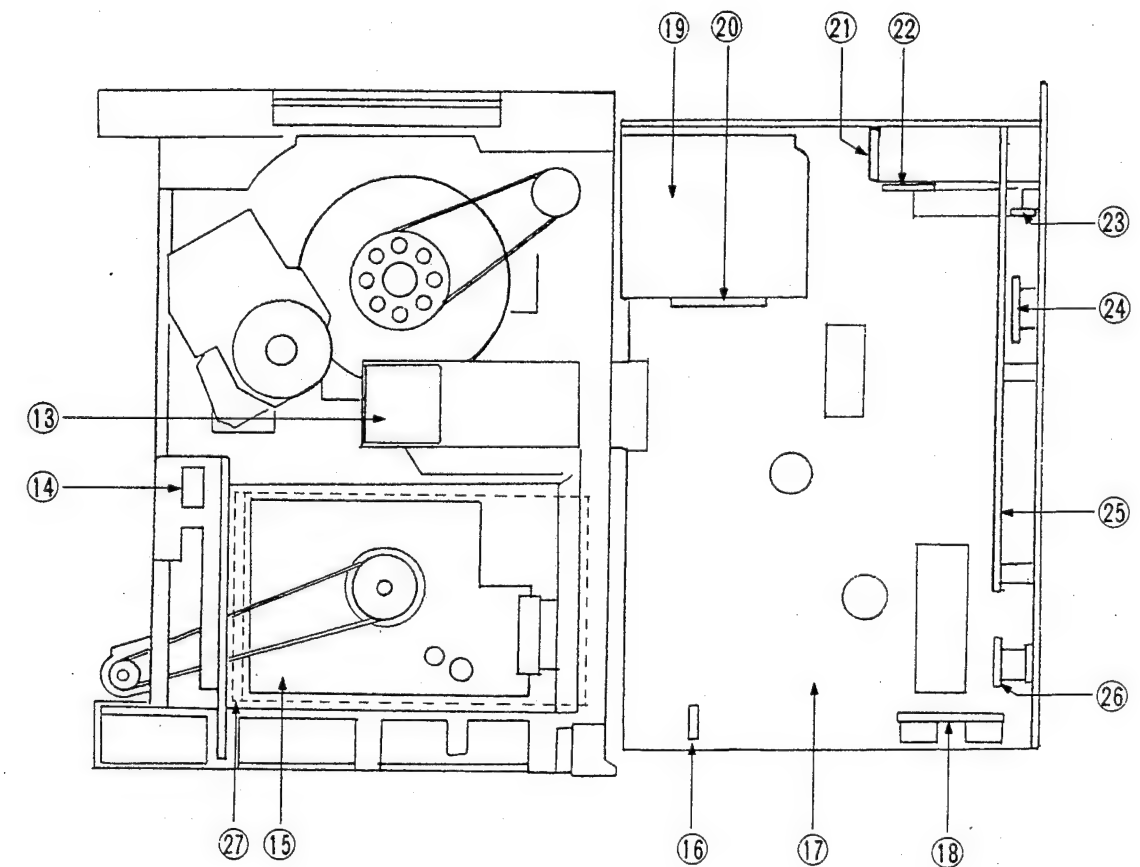
### 2-3-1. Location of the Printed Circuit Board

(TOP VIEW)



- |                |               |
|----------------|---------------|
| ① SY Board     | ⑩ SV Board    |
| ② SE-118 Board | ⑪ DU-58 Board |
| ③ SE-99 Board  | ⑫ DUS-4 Board |
| ④ LED-69 Board |               |
| ⑤ LED-70 Board |               |
| ⑥ PC-22 Board  |               |
| ⑦ KY-147 Board |               |
| ⑧ PC-22 Board  |               |
| ⑨ PD-44 Board  |               |

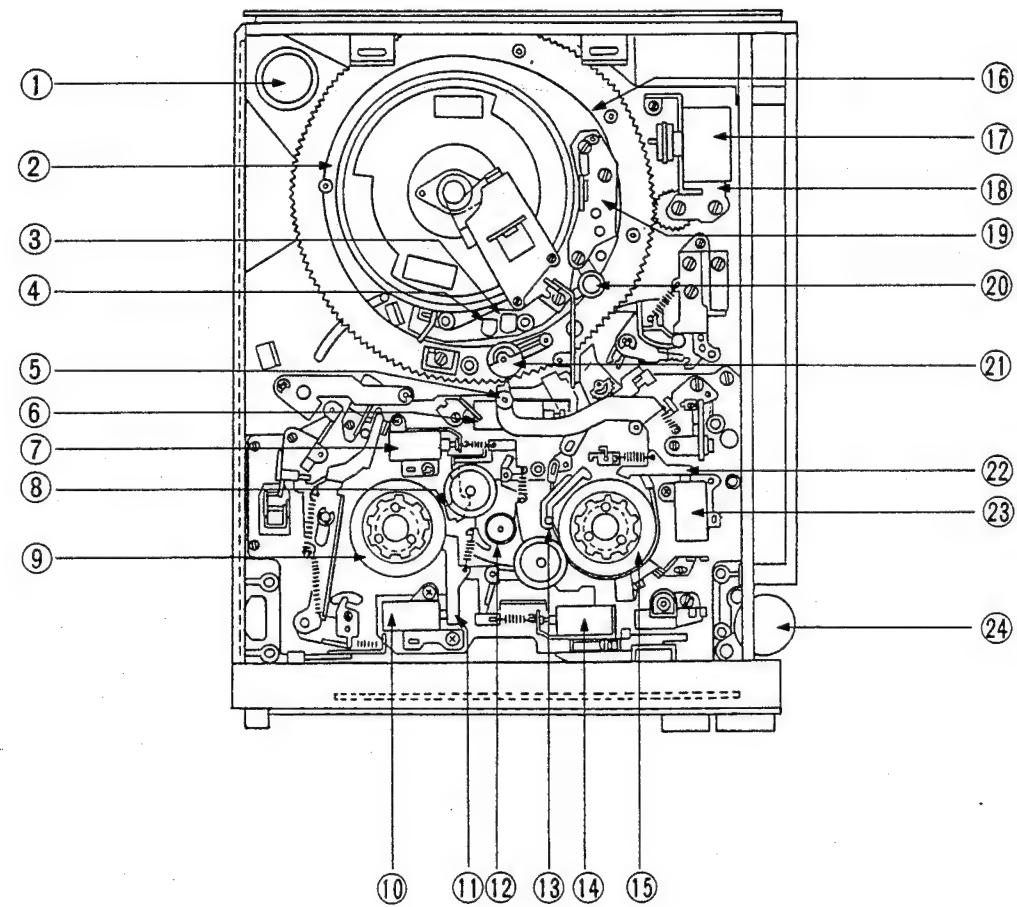
(BOTTOM VIEW)



- |                       |                                |
|-----------------------|--------------------------------|
| ⑬ RP Board            | ⑫ RMD-2 Board (For UC, J only) |
| ⑭ BP-15 Board         | ⑬ VR-85 Board                  |
| (UC: UP TO S/N 10700) | ⑭ CM-23 Board                  |
| (EK: UP TO S/N 10300) | ⑮ CP Board                     |
| ⑮ HN-102 Board        | ⑯ TR-54 Board                  |
| ⑯ HP-45 Board         | ⑰ BP-16 Board                  |
| ⑰ VA Board            | (UC: S/N 10701 AND HIGHER)     |
| ⑱ SW-296 Board        | (EK: S/N 10301 AND HIGHER)     |
| ⑲ CR Board            |                                |
| ⑳ DUS-262 Board       |                                |
| ㉑ CN-271 Board        |                                |

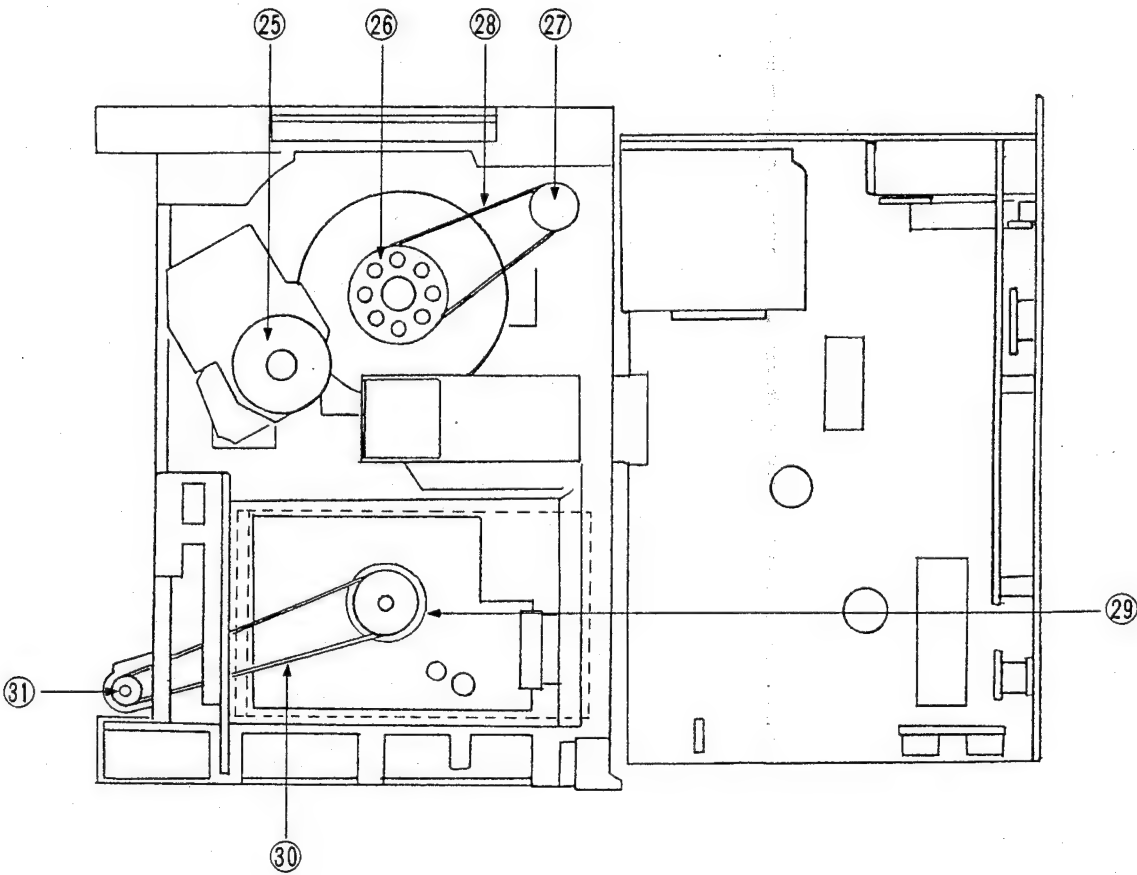
2-3-2. Location of the Mechanical Main Parts/Components

(TOP VIEW)



- |                              |                         |
|------------------------------|-------------------------|
| ① Drum Motor                 | ⑬ Supply Soft Brake     |
| ② Drum                       | ⑭ Supply Idler Solenoid |
| ③ Full Erase Head            | ⑮ Supply Reel Table     |
| ④ Time Code Head             | ⑯ Threading Ring        |
| ⑤ Tension Regulator          | ⑰ Threading Motor       |
| ⑥ Tension Regulator Solenoid | ⑱ Threading Gear Box    |
| ⑦ Take-up Idler Solenoid     | ⑲ Audio/CTL Head        |
| ⑧ Take-up Soft Brake         | ⑳ Capstan               |
| ⑨ Take-up Reel Table         | ㉑ Pinch Roller          |
| ⑩ Take-up Brake Solenoid     | ㉒ Supply Main Brake     |
| ⑪ Take-up Main Brake         | ㉓ Supply Brake Solenoid |
| ⑫ Midway Pulley              | ㉔ Reel Motor            |

(BOTTOM VIEW)



- |                      |
|----------------------|
| ②⑤ Capstan Motor     |
| ②⑥ Drum Pulley       |
| ②⑦ D Motor Pulley    |
| ②⑧ Drum Belt         |
| ②⑨ Relay Pulley      |
| ③⑩ Reel Belt         |
| ③⑪ Reel Motor Pulley |

## 2-4. PRINTED CIRCUIT BOARD

The VO-8800P circuit information is provided below.

SYSTEM	BOARD	CIRCUIT FUNCTION
VIDEO	VA-76	Y/C Mix, Y Modulator/Demodulator, C RF PB, Video Output
	DUS-262	Connection
	CR-35	Chroma Processor
	RP-38A	REC/PB Amplifier
	CP-135	Y/C Separator
	CM-23	Camera IN/OUT
AUDIO	DU-58	Audio R/P Head, Erase Head
	CP-135	XLR IN/OUT Amplifier, Select Switch
	CM-23	Camera MIC Input Select
	HP-45	Phone Level
	SW-296	Audio Level, Power Switch
	VA-76	Select Switch
	SY-131A	REC/PB Amplifier, Dolby, Pilot Tone
SERVO	SV-108A	Erase/Bias Oscillator
	PC-22	Drum/Capstan/Reel Servo
	DU-58	Take-up/Supply Reel FG
	VR-85	CTL R/P Head
		Tracking VR
SYSTEM CONTROL	SY-131A	System Control
	SE-99	Tape Top Detector
	SE-118	Tape End Detector
	KY-147	Function Key/LCD Display
	PD-44	Solenoid Driver
	HN-102	Connection
	LED-69	Tape Top LED
	LED-70	Tape End LED
POWER	DUS-4	Tension Regulator Switch
OTHER	VA-76	DC-DC Converter, Regulator
	TR-54	SAVE +10 V
OTHER	PA-85	CONF RF PB Amplifier
	SY-131A	Time Code REC/PB Amplifier
	CM-23	Camera Control
	CN-271	Connection
	*1 BP-15	Connection
	*2 BP-16	Battery Case

Note :

\*1 marked board is for Serial No. up to 10300.

\*2 marked board is for Serial No. 10301 and higher.

## 2-5. CONNECTION CONNECTOR

When external cables are connected to the various connectors on the connector panel during the maintenance, hardware (as stated below) or equivalents must be used.

Panel Indication	Connection Connector
VIDEO IN	1-560-069-11
VIDEO OUT	BNC, male
RF OUT	1-506-305-00
	F, male
AUDIO IN CH-1/L/DUB	1-508-084-00
AUDIO IN CH-2/R	XLR, 3P, male
AUDIO OUT CH-1/L	1-508-083-00
(MONITOR)	XLR, 3P, female
AUDIO OUT CH-2/R	
CAMERA	1-508-929-00
	PLUG, 14P, male
DC IN 12V	1-508-362-00
	XLR, 4P, female

## 2-6. INPUT/OUTPUT SIGNAL OF THE CONNECTOR

### INPUT

VIDEO IN : Composite signal  
1.0  $\pm$  0.3Vp-p, sync negative  
75 ohms, unbalanced

CAMERA IN : . Composite signal  
1.0  $\pm$  0.3 Vp-p, sync negative  
75 ohms, unbalanced  
. Y/C separate signal  
Y : 1.0  $\pm$  0.3 Vp-p,  
sync negative, 75 ohms,  
unbalanced  
C : burst level  
0.3  $\pm$  0.09 Vp-p,  
without sync, 75 ohms,

### AUDIO IN

CH-1/L/DUB, CH-2/R :  
+4 dB/-20 dB/-60 dB switchable,  
+4 dB : more than 10k ohms,  
balanced  
-20 dB/-60 dB :  
more than 3k ohms,  
balanced

### CAMERA MIC IN :

+4 dB/-20 dB/-60dB switchable,  
+4 dB : more than 10k ohms,  
balanced  
-20 dB/-60 dB :  
more than 3k ohms,  
balanced

### OUTPUT

VIDEO OUT : Composite signal  
1.0  $\pm$  0.2 Vp-p, sync negative  
75 ohms, unbalanced

### AUDIO OUT

CH-1/L(MONITOR), CH-2/R  
: +4 dBm (at 600-ohm load)  
balanced  
HEADPHONES : -40 dB through -20 dB  
(at 8-ohm load), adjustable

## 2-7. SELECT SWITCH SETTING

Along with the select switches on the control panel and the connector panel, the switches listed below are on the circuit boards. These switches must be set according to the operating conditions.

### SY-131A Board

S1 : TEST MODE switch  
ON : SELF DIAGNOSTIC mode  
OFF : NORMAL mode  
When the unit is shipped, this switch is set to the OFF position.

### VA-76 Board

S1 : REC RF SELECT switch  
ON : NORMAL RECORDING  
OFF : IMPACT ERROR CHECK  
When this switch is in the ON position, the video signals are recorded on a tape. When this switch is in the OFF position, the output signals from an impact error checker can be recorded. When the unit is shipped, this switch is set to the ON position.

## 2-8. SPARE PARTS

- (1) The  $\Delta$  -marked components are critical to safety.

Replace only with same components as specified.

- (2) Replacement parts supplied from the Sony Parts Center will sometimes have a different shape from the original parts. This is due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts".

This manual's exploded views and electrical spare parts list indicate the part numbers of "the standardized genuine parts at the present". Regarding engineering part changes in our engineering department, refer to Sony service bulletins and service manual supplements.

- (3) The parts marked with "s" in the SP column of the exploded views and electrical spare parts list are normally stocked for replacement purposes. The parts marked with "o" in the SP column are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

## 2-9. NOTES WHEN SERVICING

### 2-9-1. When lifting the VTR with the Cabinet Removed

Since this VTR is designed as a portable VTR, and the frame is composed of aluminum for lightweight. When the set is lifted with the cabinet removed, do not press forcibly against the frame. If you do so, there is a danger that the frame will be bent.


### 2-9-2. Maintenance of the Printed Circuit Board in the Rotary Upper Drum

The Playback Pre-amplifier for the video signal (confidence), the PA-85 Board, is installed on the Rotary Upper Drum.

The dynamic balance of the entire Rotary Upper Drum is perfectly adjusted in this state.

Therefore, the PA-85 Board should not be removed from the Rotary Upper Drum nor should the electric parts on the printed board be installed or removed. (Never perform solder to remove or install.)

When the PA-85 Board fails, replace the entire Rotary Upper Drum. If the PA-85 Board is removed, the dynamic balance will be out of specification. Jitter will be increase, and the servo will be unstable.



## **2-10. MUTING OF THE TAPE BEGINNING SENSOR AND THE TAPE END SENSOR**

Short between TP-4/SY-131A Board and GND (frame) with a short clip lead. The Tape Beginning Sensor and the Tape End Sensor stop their operation.

## **2-11. HOW TO OPERATE THE VTR WITHOUT INSERTING A CASSETTE TAPE**

Perform Sec. 2-10, Muting of the Tape Beginning Sensor and the Tape End Sensor, before operating the following modes.

### **2-11-1. Threading**

- (1) Turn the POWER ON.
- (2) Push down on the Cassette-in Switch with finger. (The threading operation starts.)
- (3) Remove the finger from the Cassette-in Switch after the rotation of the Threading Ring has fully stopped. (The VTR is put into the Threading-end mode.)

### **2-11-2. Unthreading (EJECT)**

- (1) Depress the EJECT button until it locks.
- (2) Push down on the Cassette-in Switch with a finger. (The unthreading operation starts.)
- (3) When the Threading Ring has stopped its rotation, the Cassette-up Compartment rises automatically.

### **2-11-3. PLAY**

- (1) Put the machine into the Threading-end state.
- (2) Push the PLAY button.

### **2-11-4. F.FWD**

- (1) Put the machine into the Threading-end state.
- (2) Press the F.FWD button.

### **2-11-5. REW**

- (1) Put the machine into the Threading-end state.
- (2) Press the REW button.

### **2-11-6. REC**

- (1) Connect the video signal or a camera to the machine.
- (2) Put the machine into the Threading-end state.
- (3) Push the REC and PLAY buttons simultaneously.

### **2-11-7. STOP**

- (1) Push the STOP button. (The cassette tape stops and remains in the Threading state.)

## **2-12. TAPE PROTECTION**

The VTR has various detection circuits for tape protection. These detection circuits are described here for each modes.

### **(1) During threading**

When the drum rotation stops for more than 2 seconds during the Threading mode, the DRUM ROTATE signal is not present. The protection circuit detects tape slack if it occurs. The SLACK LAMP lights, and the threading operation stops.

### **(2) During F.FWD**

When the VTR is put into the following states during the F.FWD mode, the protection circuit detects tape slack if it occurs. The SLACK LAMP lights, and the F.FWD operation stops.

- When the take-up reel table rotation stops for more than 3.6 seconds and generates the REEL STOP signal.
- When the drum rotation stops for more than 2 seconds and does not generate the DRUM ROTATE signal.

(3) During REW

When the VTR is put into the following states during the REW mode, the protection circuit detects tape slack if it occurs. The SLACK LAMP lights, and the REW operation stops.

- . When the supply reel table rotation stops for more than 3.6 seconds and generates the REEL STOP signal.
- . When the drum rotation stops for more than 2 seconds and does not generate the DRUM ROTATION signal.

(4) During PLAY

When the VTR is put into the following states during the PLAY mode, the protection circuit detects tape slack if it occurs. The SLACK LAMP lights, and the PLAY operation stops.

- . When the take-up reel table rotation stops for more than 1.2 seconds and generates the REEL STOP signal.
- . When the drum rotation stops for more than 2 seconds and does not generate the DRUM ROTATION signal.

When put into the following states, the protection circuit detects tape slack if it occurs and releases the pressure of the pinch roller against the capstan shaft.

- . When the capstan motor rotates in the reverse direction (against the designated direction) for more than 2 seconds with the pinch roller pressed against the capstan shaft.

(For example, the capstan motor should rotate in the FWD direction in the PLAY mode. However, when it rotates in the REV direction, the tape protection circuit detects this.)

(5) During STOP in the STANDBY ON mode

When the VTR is put into the following state during STOP in the STANDBY ON mode, the protection circuit detects tape slack if it occurs. The SLACK LAMP lights.

- . When the drum rotation stops for more than 2 seconds and does not generate the DRUM ROTATE signal.

(6) During STOP in the STANDBY OFF mode

When the VTR is put into the following states during STOP in the STANDBY OFF mode, the protection circuit detects tape slack if it occurs. The SLACK LAMP lights.

- . When the capstan shaft rotates in the REV direction to release the tape tension with the pinch roller pressed against the capstan shaft, if the capstan shaft does not stop its rotation in 2 seconds, the pinch roller pressure against the capstan shaft is released.
- . When the tension arm does not return to the designated position in 700 msec. during the tape tension releasing operation.

(7) During FWD PAUSE

When the VTR is put into the following state during the FWD PAUSE mode, the protection circuit detects tape slack if it occurs. The SLACK LAMP lights, and the FWD PAUSE operation stops.

- . When the drum rotation stops for more than 2 seconds and does not generate the DRUM ROTATE signal.



(8) During REC PAUSE

When the VTR is put into the following states during the REC PAUSE mode, the protection circuit detects tape slack if it occurs. The SLACK LAMP lights, and the REC PAUSE operation stops.

- . When the drum rotation stops for more than 2 seconds and does not generate the DRUM ROTATE signal.
- . When the capstan shaft rotates in the REV direction to release the tape tension with the pinch roller pressed against the capstan shaft, if the capstan shaft does not stop its rotation in 2 seconds, the pinch roller pressure against the capstan shaft is released.

(9) During SHORT REW

When the VTR is put into the following states during the SHORT REW mode, the protection circuit detects tape slack if it occurs. The SLACK LAMP lights, and the SHORT REW operation stops.

- . When the drum rotation stops for more than 2 seconds and does not generate the DRUM ROTATE signal.
- . When the supply reel table rotation stops for more than 3.6 seconds and generates the REEL STOP signal.

(10) During BRAKE MODE

When the operation of (such as PLAY, F.FWD and REW) modes changes to the STOP mode, the reel table stops its rotation during this mode changing. This mode is called the BRAKE MODE.

When the VTR is put into the following states during the BRAKE MODE, the protection circuit detects tape slack if it occurs. The SLACK LAMP lights.

- . When the Take-up Reel Table doesn't stop for more than 2 seconds and doesn't generate the REEL STOP signal during the mode change from the PLAY or F.FWD mode to the STOP mode.

- . When the Supply Reel Table doesn't stop for more than 2 seconds and doesn't generate the REEL STOP signal during the mode change from the REW mode to the STOP mode.

- . When the drum rotation stops for more than 2 seconds and does not generate the DRUM ROTATE signal.

(11) During unthreading (take-up of the tape by the Take-up Reel Table)

- . This Unthreading mode shows the following unthreading operations,

When the condensation sensor on the lower drum detects condensation or when the drum does not rotate.

When the VTR is put into the following state during this operation, the protection circuit detects tape slack if it occurs. The SLACK LAMP lights, and the unthreading operation stops.

- . When the Take-up Reel Table rotation stops for more than 0.8 seconds and generates the REEL STOP signal.

(12) During unthreading (take-up of the tape by the Supply Reel Table)

This Unthreading mode shows the normal unthreading operation. When the VTR is put into the following states during this operation, the protection circuit detects tape slack if it occurs. The SLACK LAMP lights, and the unthreading operation stops.

- . When the Supply Reel Table rotation stops for more than 0.8 seconds and generates the REEL STOP signal.
- . When the drum rotation stops for more than 2 seconds and does not generate the DRUM ROTATE signal.

### **2-13. CASSETTE REMOVAL PROCEDURE WHEN NORMAL EJECTION IS NOT POSSIBLE**

If the eject operation becomes impossible due to tape slack when the eject operation is attempted, cassette tape can be removed from the machine by the following procedures.

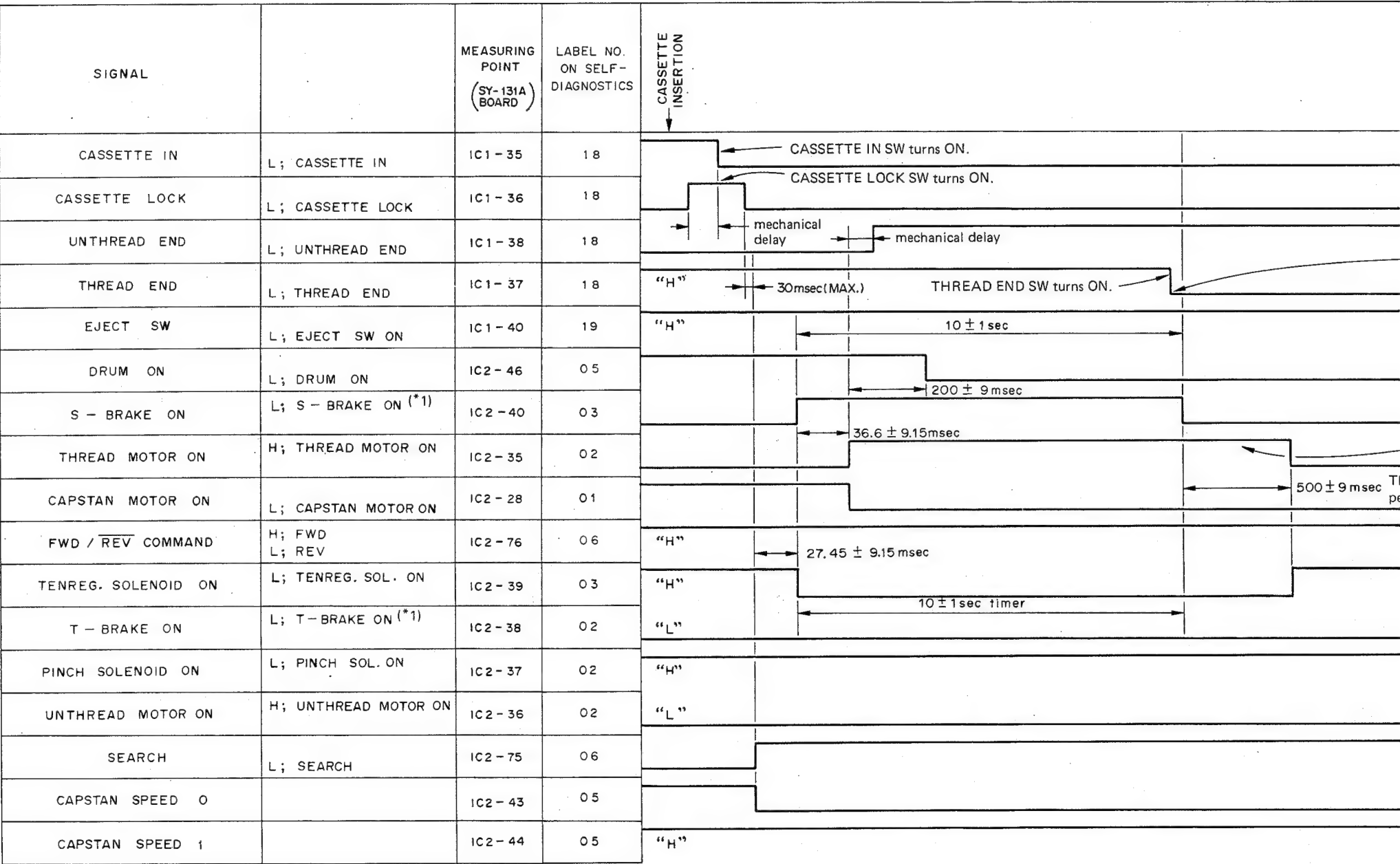
- (1) Remove the upper lid of Cassette-up Compartment.
- (2) Remove the upper case.
- (3) Push down on the EJECT key until it locks.
- (4) Turn the pulley of Threading Motor by hand so that the Threading Ring rotates into the unthreading mode. When the unthreading mode is completed, the lock of the Cassette-up Compartment is released and rises automatically. At this time, hold down the Cassette-up Compartment by hand so that it does not rise when the unthreading mode is completed and the tape is not damaged.
- (5) While holding the cassette tape lid so that it does not close, rise the Cassette-up Compartment slowly.
- (6) Remove the tape remaining in the machine carefully so that the tape is not damaged.

## 2-14. FIXTURE FOR ALIGNMENT

Parts No.	Description	Application
J-6001-820-A	Drum Eccentricity Gauge (3)	Upper drum eccentricity adjustment
J-6001-830-A	Drum Eccentricity Gauge (2)	
J-6001-840-A	Drum Eccentricity Gauge (1)	
J-6001-930-A	Drum Eccentricity Gauge (4)	
J-6002-270-A	Reel Table Torque Measurement Tape (40mm dia.)	Brake torque adjustment
J-6009-830-A	Flatness Plate	Audio/CTL, TC head slantness adjustment
J-6080-029-A	Small Mirror for Adjustment	Video tracking adjustment
J-6080-030-1	Spare Mirror	
J-6130-010-A	Reel Table Height Check Base Jig	Reel table height adjustment
J-6130-020-A	Reel Table Height Check Jig	
J-6152-450-A	Clearance Check Gauge	Clearance check
J-6152-560-A	Tape Guide Slantness Check Tool	Tape guide, TC head slantness adjustment
J-6153-020-A	Dihedral Adjusting Eccentric Screwdriver	Video head dihedral adjustment
Y-2031-001-0	Cleaning Fluid	Cleaning
2-034-697-00	Cleaning Piece	
3-702-390-01	Eccentric Screwdriver (4mm dia.)	Position adjustment
7-700-736-01	L-shaped Hexagonal Wrench (1.27mm)	Video tracking adjustment
7-732-050-20	Tension Scale (50g full scale)	Brake torque, tape tension adjustment
7-732-050-30	Tension Scale (100g full scale)	
7-732-050-50	Tension Scale (500g full scale)	
8-960-020-62	Alignment Tape, RR5-2SB PAL	Video adjustment
8-960-036-02	Alignment Tape, RR2-1SD PAL	Video tracking adjustment
8-960-036-80	Alignment Tape, RR5-1SD PAL	Servo, audio and video adjustment
9-911-053-00	Thickness Gauge	Clearance check
Standard Products	Head Demagnetizer(HE-4)	Head demagnetize

2-15. TIMING CHART

CASSETTE IN-(THREADING)-STOP



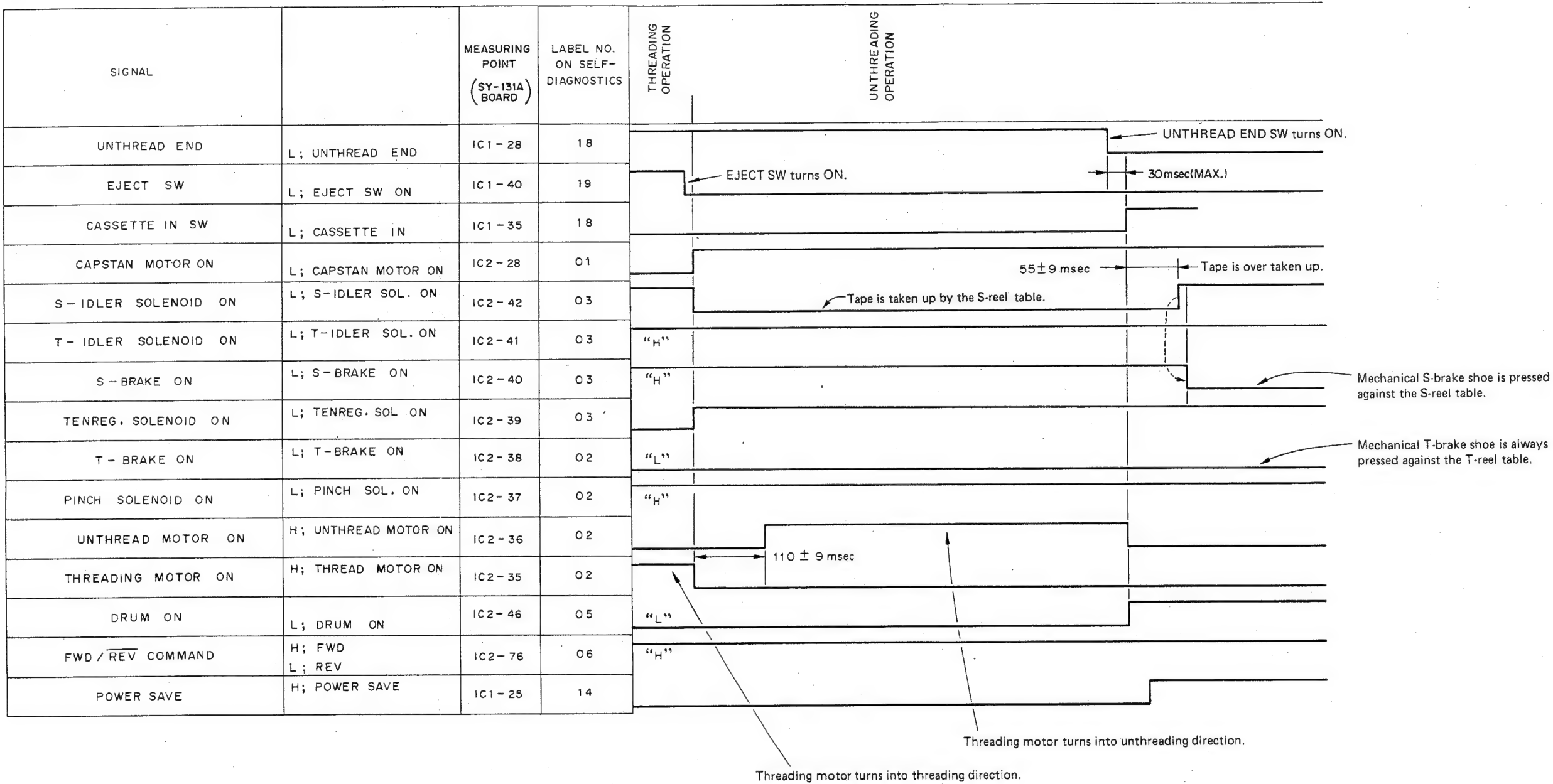
If the THREAD END switch is not turned into "L" level during 10±1 sec, the system control circuit detects as the threading trouble, and then the threading operation is stopped immediately.

Threading motor turns into threading direction.

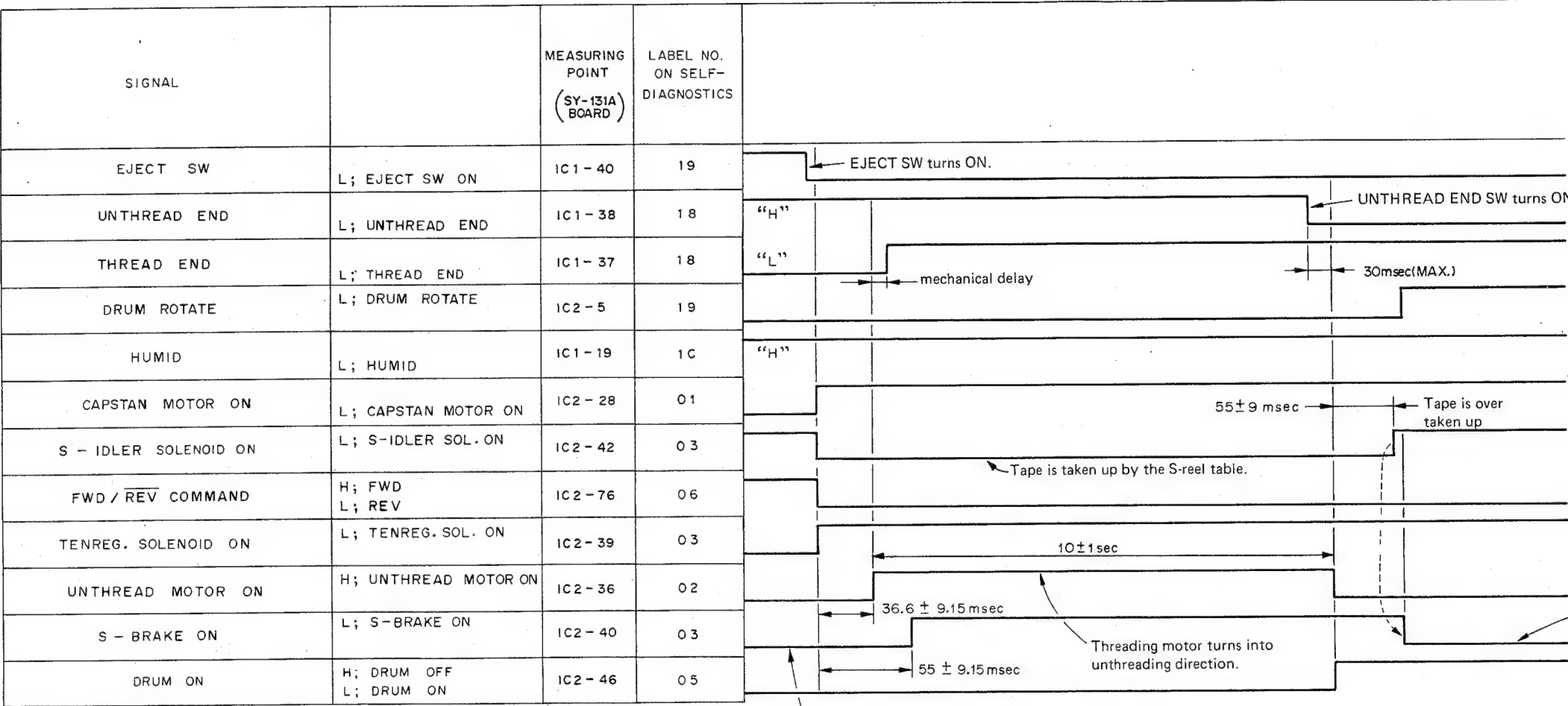
Threading ring is over turning in this period.

NOTE  
\*1: "S-BRAKE ON" or T-BRAKE ON" means the following state.  
"S-BRAKE ON" or "T-BRAKE ON" signal turns "L"  
↓  
S-brake solenoid or T-brake solenoid is energized.  
↓  
Mechanical S-brake shoe or T-brake shoe is released from the each reel table.

EJECT OPERATION DURING THREADING



UNTHREADING OPERATION FROM STOP MODE (1)



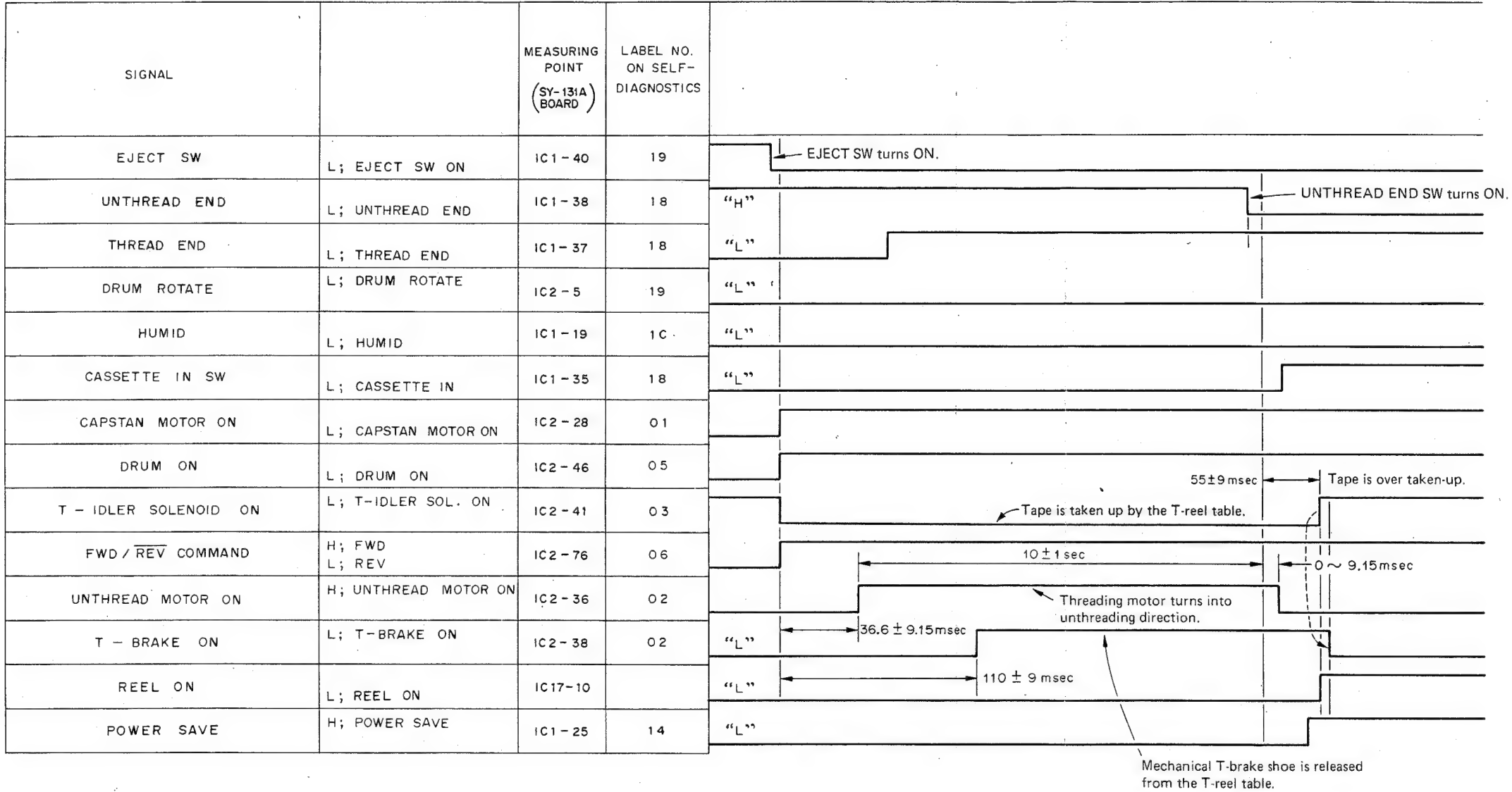
Mechanical S-brake shoe is pressed against the S-reel table.

If the UNTHREAD END switch is not turned into "L" level during 10±1 sec, the system control circuit detects as the unthreading trouble, and the following signals change immediately.

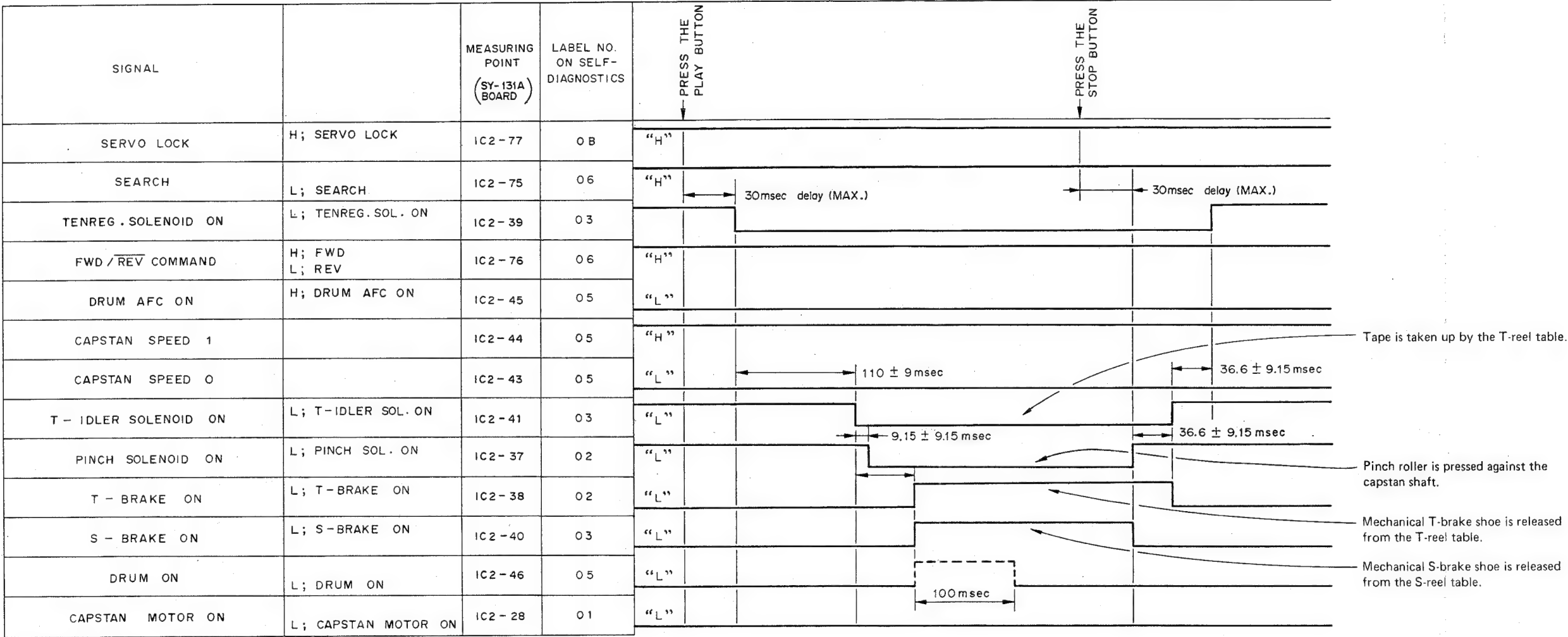
- UNTHREAD MOTOR ON: H→L
- DRUM ON: L→H
- S-IDLER SOLENOID ON: H→L
- S-BRAKE ON: H→L
- FDW/REV COMMAND: L→H

Mechanical S-brake shoe is pressed against the S-reel table.

UNTHREADING OPERATION FROM STOP MODE (2)  
(When DRUM ROTATE signal or HUMID signal is detected,  
following operation is performed.)



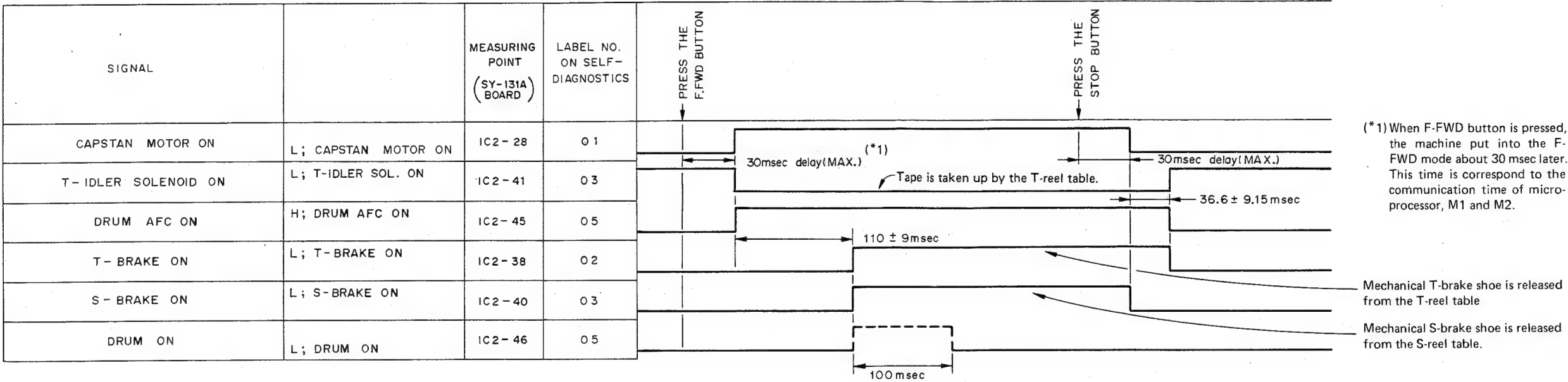
STOP - PLAY - STOP



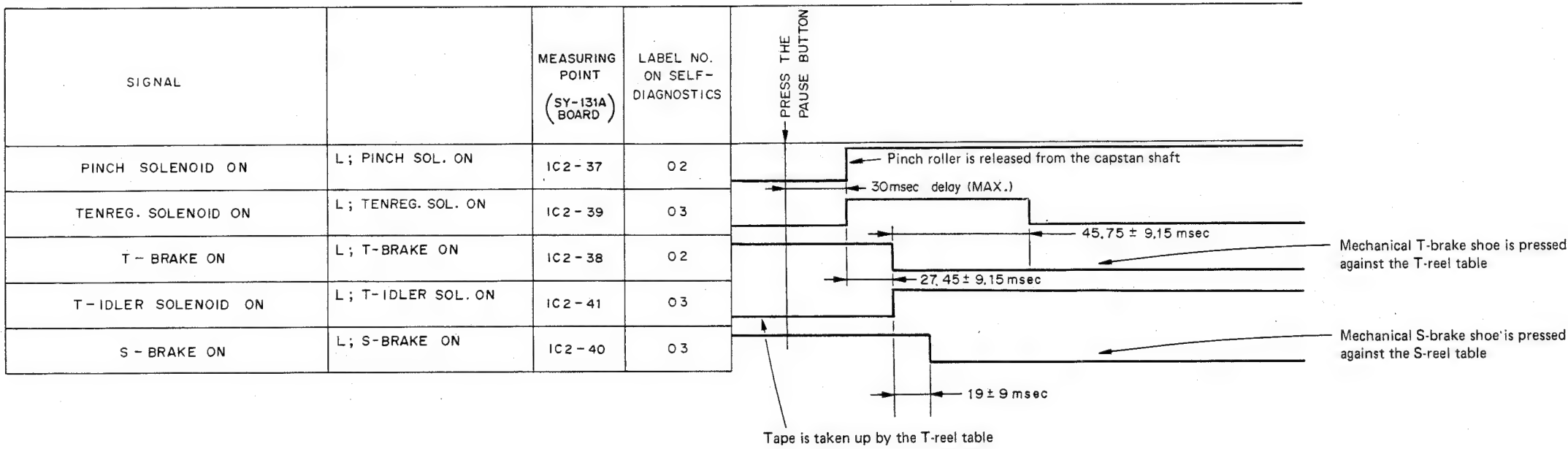




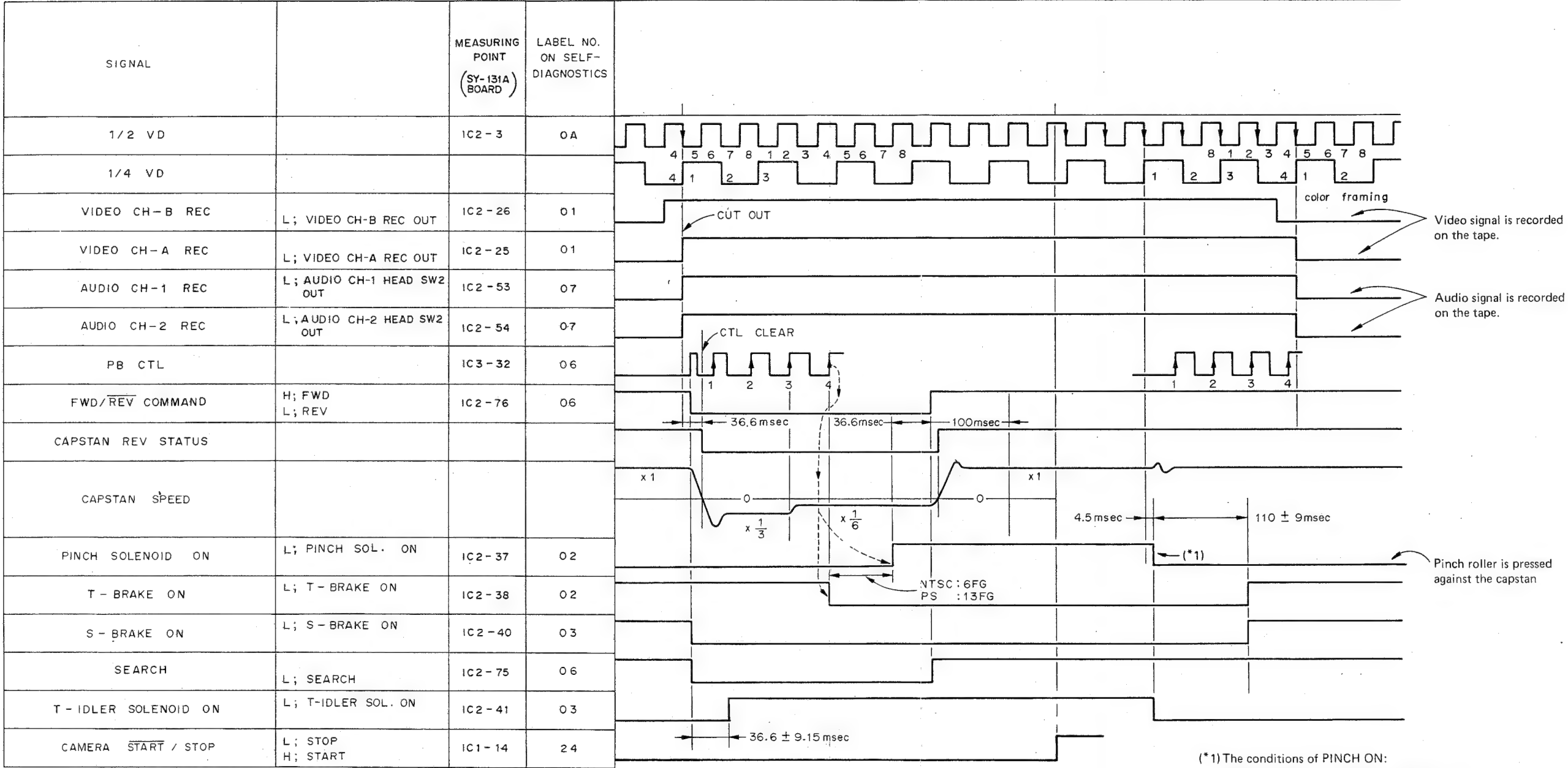
STOP - F-FWD - STOP



PLAY - PLAY - PAUSE

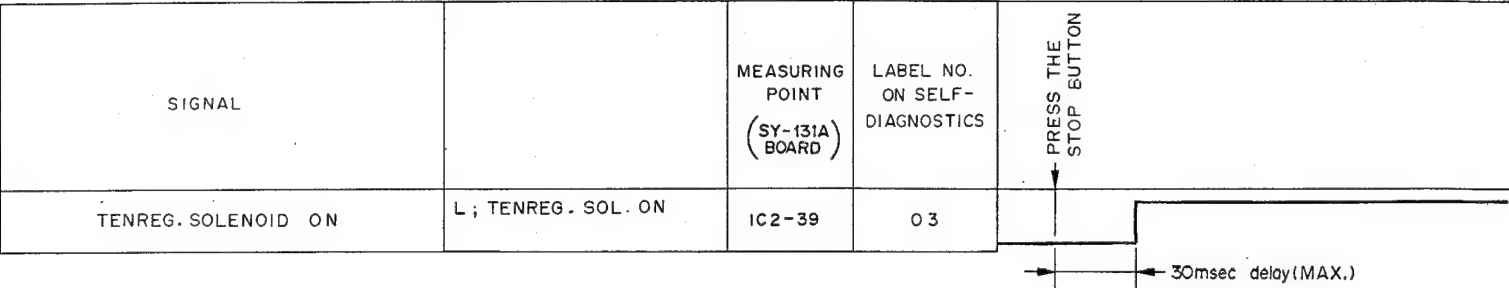


REC-REC/PAUSE-REC

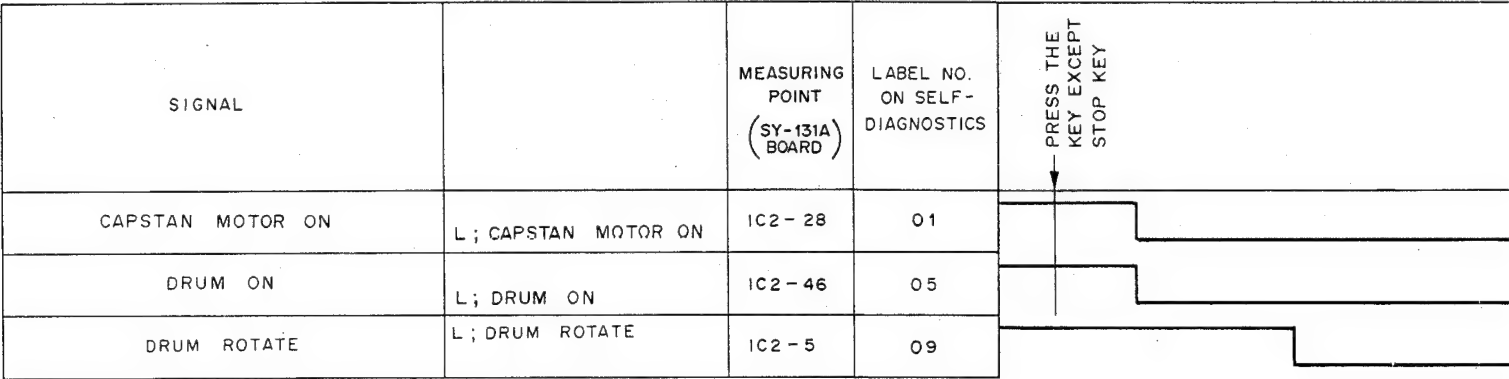


(\*1) The conditions of PINCH ON:  
SERVO LOCK is "H" and also VIDEO DET  
(CAMERA VIDEO DET or LINE VIDEO DET)  
is "H".

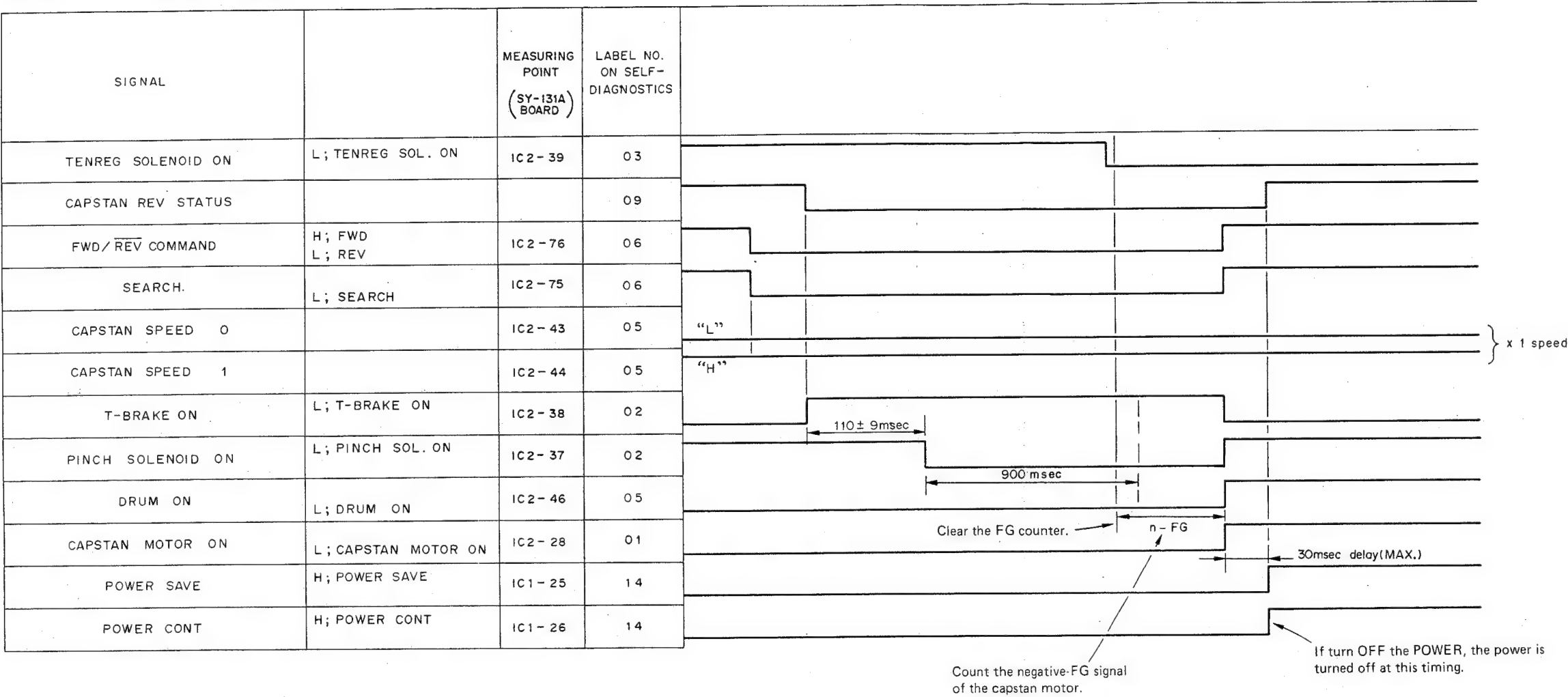
REC·FWD·PAUSE → STOP and  
FWD·PAUSE → STOP



STANDBY OFF → STANDBY ON  
(DRUM STOP → DRUM ROTATE)



STANDBY OFF (TENSION RELEASE MODE)



2-16. SELF-DIAGNOSTIC FUNCTION

The VO-8800P has a micro-computer self-diagnostic function. This function is used as shown below.

- (1) Check that the dc power circuit for REG 5V, UNSW 5V, and EVER 5V are normal.
- (2) Set S1 on the SY-131A board to ON position in order to put the unit into the self-diagnostic mode.

- (3) Check that the function of the two left-hand digits of the LCD display is normal.

Method : Press the RESET button on the control panel repeatedly, and check that (0 to 9, A, b, C, d, E, and F) are displayed on the LCD display panel.

- (4) Find the signals to check in the self-diagnostic mode by using the timing chart.

- (5) Find the signals in the diagnostic table, and enter number or character which is listed in the column "LABEL" with the RESET button. The number or character will be displayed on the two right-hand digits of the LCD display.

- (6) Insert a cassette tape, and put the unit into the mode in which the trouble occurred.

- (7) "0"s and/or "1"s will be displayed on the four left-hand digits of the LCD display. When the displayed numbers are same with them which are listed in the diagnostic table, the operation of the unit is normal. When they are not, check the appropriate signal to repair.

88:8888

	LABEL		FIGURES OF DISPLAY				
	1	2	3	4	5	6	
IC2/SY-131A OUTPUT DATA	0	0	VIDEO MUTE "0" (SY-131A) IC2-50	AUDIO MUTE "1" (SY-131A) IC2-49	AUDIO CH-2 PB/EE "0/1" (SY-131A) IC2-48	AUDIO CH-1 PB/EE "0/1" (SY-131A) IC2-47	
	0	1	CAPSTAN ON "0" (SY-131A) IC2-28	VIDEO PB/EE "1/0" (SY-131A) IC2-27	VIDEO CH-B REC "0" (SY-131A) IC2-26	VIDEO CH-A REC "0" (SY-131A) IC2-25	
	0	2	T-BRAKE SOL. ON "0" (SY-131A) IC2-38	PINCH SOL. ON "0" (SY-131A) IC2-37	UNTHREAD MOTOR ON "1" (SY-131A) IC2-36	THREAD MOTOR ON "1" (SY-131A) IC2-35	
	0	3	S-IDLER SOL. ON "0" (SY-131A) IC2-42	T-IDLER SOL. ON "0" (SY-131A) IC2-41	S BRAKE SOL. ON "0" (SY-131A) IC2-40	TENREG SOL. ON "0" (SY-131A) IC2-39	
	0	5	DRUM ON "0" (SY-131A) IC2-46	DRUM AFC ON "1" (SY-131A) IC2-45	CAPSTAN SPEED 1 (*NOTE-8) (SY-131A) IC2-44	CAPSTAN SPEED 0 (*NOTE-8) (SY-131A) IC2-43	
	0	6	FWD/REV COMMAND "1" (SY-131A) IC2-76	SEARCH "0" (SY-131A) IC2-75	PB (*NOTE-1) (SY-131A) IC2-74	IC2 READY "0" (SY-131A) IC2-72	NOTE-1, "L:PB" signal goes to low level in the FF, REW, FWD, REC/FWD, and STANDBY during the STOP modes.
	0	4			PINCH ON/OFF "1" (SY-131A) IC2-30	DUB "0" (SY-131A) IC2-29	
	0	7	AUDIO CH-2 HEAD SW2 "1" (SY-131A) IC2-54	AUDIO CH-1 HEAD SW2 "1" (SY-131A) IC2-53	AUDIO CH-2 HEAD SW1 "0" (SY-131A) IC2-52	AUDIO CH-1 HEAD SW1 "0" (SY-131A) IC2-51	
	0	8		AUDIO CH-1 BIAS ON "0" (SY-131A) IC2-57	AUDIO CH-2 REC MUTE "1" (SY-131A) IC2-56	AUDIO CH-1 REC MUTE "1" (SY-131A) IC2-55	

	LABEL		FIGURES OF DISPLAY				
	1	2	3	4	5	6	
IC2/SY-131A INPUT DATA	0	d	TAPE PROTECTION "1" (SY-131A) IC2-20	TEST 2 (MEMORY) "0" (SY-131A) IC2-79	SELF CHECK MODE "0" (SY-131A) IC2-18	AUTO STOP: OFF (* NOTE-2) (SY-131A) "0" (IC2-17)	NOTE-2, When pin 17 of IC2 is "L" level, AUTO STOP (TAPE PROTECTION) mode does not operate.
	0	A	TEN-REG SW ON "0" (SY-131A) IC2-4	1/2 VD (SY-131A) IC2-3	COMMUNICATION FIRST FLAG "1" (SY-131A) IC2-2	BACK SPACE EDIT: START (* NOTE-3) (SY-131A) "1" (IC2-1)	NOTE-3, When the unit is put into the REC/FWD mode from the REC/PAUSE mode, this signal informs mode change from IC1 to IC2.
	0	9	REEL STOP STATUS "1" (SY-131A) IC2-8	CAPSTAN FWD/REV "1/0" (SY-131A) IC2-7	CAPSTAN ROTATE "1" (SY-131A) IC2-6	DRUM ROTATE "0" (SY-131A) IC2-5	
	0	b	SERVO REC "0" (SY-131A) IC2-80	CAMERA VIDEO DET. "0" (SY-131A) IC2-79	LINE VIDEO DET. "0" (SY-131A) IC2-78	SERVO LOCK "1" (SY-131A) IC2-77	
	0	c	TEN. REG. OFF (SY-131A) IC2-24		PINCH ON STATUS "1" (SY-131A) IC2-22	CAPSTAN LOCK "0" (SY-131A) IC2-21	
	0	E	← CTL COUNT DURING BACK SPACE EDITING →				
	0	F	← CTL COUNT DURING BACK SPACE EDITING →				
IC1/SY-131A OUTPUT DATA	1	0	SP MONITOR DETECT (* NOTE-4) (SY-131A) "1" (IC1-80)	LINE SELECT "1" (SY-131A) IC1-79	T-LED ON "0" (SY-131A) IC1-78	S-LED ON "0" (SY-131A) IC1-77	NOTE-4, When the connection cable (VMC-1MQ) is connected between pin 14 and pin 8, the number "1" is displayed.
	1	1	CHARA GEN. MUTE "1" (SY-131A) IC1-8		REC TALLY "0" (SY-131A) IC1-6	CAMERA RESET "1" (SY-131A) IC1-5	
	1	2	RF MUTE "0" (SY-131A) IC1-70				
	1	3	REC FWD "1" (SY-131A) IC1-32	ALARM TONE "0" (SY-131A) IC1-31	BATTERY ALARM "0" (SY-131A) IC1-30	FF/REW "1" (SY-131A) IC1-29	
	1	4		CONF EE "1" (SY-131A) IC1-27	POWER CONT "1" (SY-131A) IC1-26	POWER SAVE "1" (SY-131A) IC1-25	
	1	5					

	LABEL		FIGURES OF DISPLAY				
	1	2	3	4	5	6	
OUTPUT DATA	1	6	COMMUNICATION SELECT (SY-131A) IC1-76	COMMUNICATION SELECT (SY-131A) IC1-75		COMMUNICATION FIRST FLAG "1" (SY-131A) IC1-72	
	1	7	BACK SPACE EDIT START (*NOTE-3) (SY-131A) "1" IC1-4			TAPE FWD/REV (IN) "1/0" (SY-131A) IC1-2	COMMUNICATION READY (IN) "0" (SY-131A) IC1-1
IC1/SY-131A INPUT DATA	1	8	UNTHREAD END "0" (SY-131A) IC1-38	THREAD END "0" (SY-131A) IC1-37	CASSETTE LOCK "0" (SY-131A) IC1-36	CASSETTE IN "0" (SY-131A) IC1-35	
	1	9	TAPE END (SY-131A) IC1-42	TAPE TOP (SY-131A) IC1-41	EJECT SW "0" (SY-131A) IC1-40	MISS REC SW "0" (SY-131A) IC1-39	
	1	A	NTSC/PAL "1/0" (SY-131A) IC1-46	LOCAL INHIBIT (*NOTE-5) (SY-131A) "0" IC1-45	CHARA GEN. SW "1" (SY-131A) IC1-44	TAPE BEFORE END "0" (SY-131A) IC1-43	NOTE-5, (H: RM-690 + VO-8800 KEY FUNCTION) (L: RM-690 + STOP KEY and EJECT SW)
	1	b	LINE VIDEO DETECT "0" (SY-131A) IC1-50	CAMERA VIDEO DETECT "0" (SY-131A) IC1-49	CAMERA/LINE SW "1/0" (SY-131A) IC1-48	CAMERA 1/2 SW "1/0" (SY-131A) IC1-47	
	1	C	POWER OFF "0" (SY-131A) IC1-20	HUMID DETECT (SY-131A) IC1-19	BATTERY DETECT (SY-131A) IC1-18	BATTERY DISP. SW. "0" (SY-131A) IC1-17	
	1	d					
	1	E	BKU CONNECTED "0" (SY-131A) IC1-58		EXPANDER CS (OUT) (SY-131A) IC1-56	EXPANDER PROG. (OUT) (SY-131A) IC1-55	
SOFT STATUS	1	F	← * NOTE-6 →				
	2	0	HUMID "1"	SLACK "1"			
	2	1	TAPE END "1"	TAPE TOP "1"	BATTERY END "1"	BATTERY BEFORE END "1"	



	LABEL		FIGURES OF DISPLAY				
	1	2	3	4	5	6	
INPUT	2	3	DUB KEY "0"	REC KEY "0"		PAUSE KEY "0"	
	2	4		RESET KEY "0"	CAMERA START "0"	EJECT KEY "0"	
	2	5			REEL DET "1" (※ NOTE-7)	DRUM ROT DET "1" (NOTE-7)	NOTE-7, This signal is the slack signal that is detected in IC1 on the SY-131A board.
	2	2	FF KEY "0"	PLAY KEY "0"	REW KEY "0"	STOP KEY "0"	

NOTE-6;

DISPLAYED DATA	CAUSE OF SLACK
IF : 0000	Normal
IF : 0001	The UNTHREAD END signal does not generate after 10 seconds are passed in the unloading mode, or the THREAD END signal does not generate after 10 seconds are passed in the threading mode.
IF : 0011	The capstan does not rotate reversely.
IF : 1001	The REEL STOP signal does not generate after 2 seconds are passed. The TEN. REG. switch does not turn on in the tape tension release mode.
IF : 1010 IF : 1011	Reel rotation is NG.

NOTE-8;

SPEED	SPEED 0	SPEED 1
x1	( 1 )	( 0 )
x 1/3	( 0 )	( 1 )
x 1/6	( 0 )	( 0 )

## SECTION 3

### PERIODIC CHECK AND MAINTENANCE

It is recommended that the following periodic check and maintenance schedule be employed in order to obtain maximum performance and longer tape life from VO-8800P.

#### 3-1. MAINTENANCE AFTER REPAIRS

Perform the following maintenance after repair regardless the operating hours of the machine.

- (1) Cleaning of the video heads and confidence heads
  - . Press the cleaning piece moistened with the cleaning fluid and turn the drum slowly with hand, cleaning the heads.  
(Never turn the motor by the electric power for the cleaning.)
  - . Never move the cleaning piece in the vertical direction of head tip in the cleaning. It tends to damage the video head tips.
- (2) Cleaning of tape running system
  - . Wipe the tape bearing surfaces (of the tape guide, drum, capstan, and pinch roller) with cleaning piece saturated with the cleaning fluid.
- (3) Cleaning of drive system
  - . Wipe the drive system (such as belt, idler, and reel table surface) with cleaning piece saturated with the cleaning fluid.

#### 3-2. PERIODIC CHECK

Perform the maintenance checks described separately in accordance with the operational hours of the machine.

#### 3-3. HOURS METER

VO-8800P has an hours meter on the chassis for the periodic check and maintenance. It is recommended that the hours meter is used as a tool for determining the periodic check. When the hours meter indicates the maximum value, 1000 hours, the hours meter must be replaced with a new one.

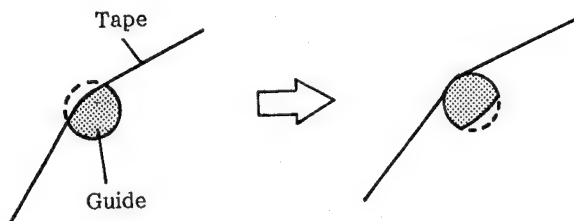
#### 3-4. OTHERS

- (1) Sony oil
  - . Be sure to use the Sony oil as the lubrication oil. (If oil other than the Sony oil is used, various troubles due to different viscosity tends to be caused.)  
Sony oil: Part No. 7-661-018-01
  - . Use the Sony oil in which dust or other foreign material have not mixed for lubricating the bearing. (If foreign material is in the oil, wear or burning of the bearing tends to be caused.)

○ : Cleaning ◆ : Replacement ◇ : Check (Adjustment) □ : Smear grease ◎ : Rotation

Item	Operating hours(H)		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	Reference	Reference of Exploded View
	Part No													
Tape path block	—		○	○	○	○	○	○	○	○	○	○	—	—
Upper drum ass'y. (DUR-50-R)	A-6709-665-A		○	◆	○	◆	○	—	○	◆	○	◆	4-1	16-15 16-16
Head drum ass'y (DUH-50A-R)	A-6709-664-A		○	○	○	○	○	◆	○	○	○	○	4-2	16-15 16-16
Audio/CTL head (EPS264-5803)	8-825-578-22		○	○	○	○	○	◆	○	○	○	○	4-7	16-16
Time code head (PP295-58)	8-825-771-31		○	○	○	○	○	◆	○	○	○	○	4-6	16-15 16-16
Full erase head	8-825-544-20		○	○	○	○	○	◆	○	○	○	○	4-5	16-15 16-16
Slip ring ass'y	A-4926-251-A		—	—	—	—	—	◆	—	—	—	—	—	16-15 16-16
Brush	3-641-645-00		—	—	—	—	—	◆	—	—	—	—	—	16-15 16-16
Pinch roller ass'y	X-3685-804-1		○	◆	○	◆	○	◆	○	◆	○	◆	4-9	16-14
Capstan motor (BHF-1913B)	8-835-351-01		—	—	—	—	—	◆	—	—	—	—	4-3	16-15 16-16
Drum driving motor (MNR-2900B)	8-835-235-01		—	—	—	—	◆	—	—	—	—	◆	4-4	16-9 16-10
Reel driving motor (MNR-7400A)	8-835-123-01		—	—	—	—	◆	—	—	—	—	◆	4-16	16-9 16-10
Threading motor	1-541-163-51		—	—	—	—	—	◆	—	—	—	—	4-15	16-12
Tape guide, TG-1	3-687-968-01		○	○	○	○	○	◎	○	○	○	○	—	16-15 16-16
Tape guide, TG-3	3-686-020-03		○	○	○	○	○	◎	○	○	○	○	—	16-15 16-16
Tape guide, TG-4	3-685-925-01		○	○	○	○	○	◎	○	○	○	○	—	16-15 16-16
* Reel belt	3-685-803-02		○	○	○	◆	○	○	○	◆	○	○	—	16-9 16-10
* Drum belt	3-686-017-02		○	○	○	◆	○	○	○	◆	○	○	—	16-9 16-10
* Threading belt	3-686-010-03		○	○	○	◆	○	○	○	◆	○	○	—	16-12
Reel table ass'y	A-6739-034-A		○	○	○	○	○	◆	○	○	○	○	—	16-3 16-4 16-5 16-6
Idler tire	3-687-902-01		○	◆	○	◆	○	—	○	◆	○	◆	—	16-7 16-8
Idler tire ass'y	A-6740-084-A		—	—	—	—	—	◆	—	—	—	—	—	16-7 16-8
* Tension regulator band ass'y	X-3685-814-4		—	—	—	◆	—	—	—	◆	—	—	—	16-5 16-6
* brake arm ass'y	X-3685-819-2		—	—	—	◆	—	—	—	◆	—	—	—	16-3 16-4 16-5 16-6
* T soft brake ass'y	X-3685-818-2		—	—	—	◆	—	—	—	◆	—	—	—	16-3 16-4
* S soft brake ass'y	X-3685-817-2		—	—	—	◆	—	—	—	◆	—	—	—	16-5 16-6
Ring roller ass'y	X-3685-801-1 X-3685-802-1 X-3685-803-1		—	□	—	□	—	□	—	□	—	□	—	16-14
Check the PLAY back tension	—		—	◇	—	◇	—	◇	—	◇	—	◇	6-3	—
Check the brake torque	—		—	—	—	◇	—	—	—	◇	—	—	6-1 6-2	—

- (NOTE 1) The Slip Ring Ass'y and Brush are included in the Head Drum Ass'y. When replacing the Head Drum Ass'y, the Slip Ring Ass'y and Brush is replaced together.
- (NOTE 2) Be sure to clean the tape run area in repairing.
- (NOTE 3) Operating hours (such as replacement, check and so on) will be different in operating environment.
- (NOTE 4) We recommend you to replace early the ※ marked parts for maintenance of the best condition.
- (NOTE 5) Ⓒ (Rotation) marked item means to turn the tape guide by hand so that the worn portion of the tape guide doesn't touch a tape. Turn the tape guide by 180°.



## SECTION 4

### REPLACEMENT OF MAJOR PARTS

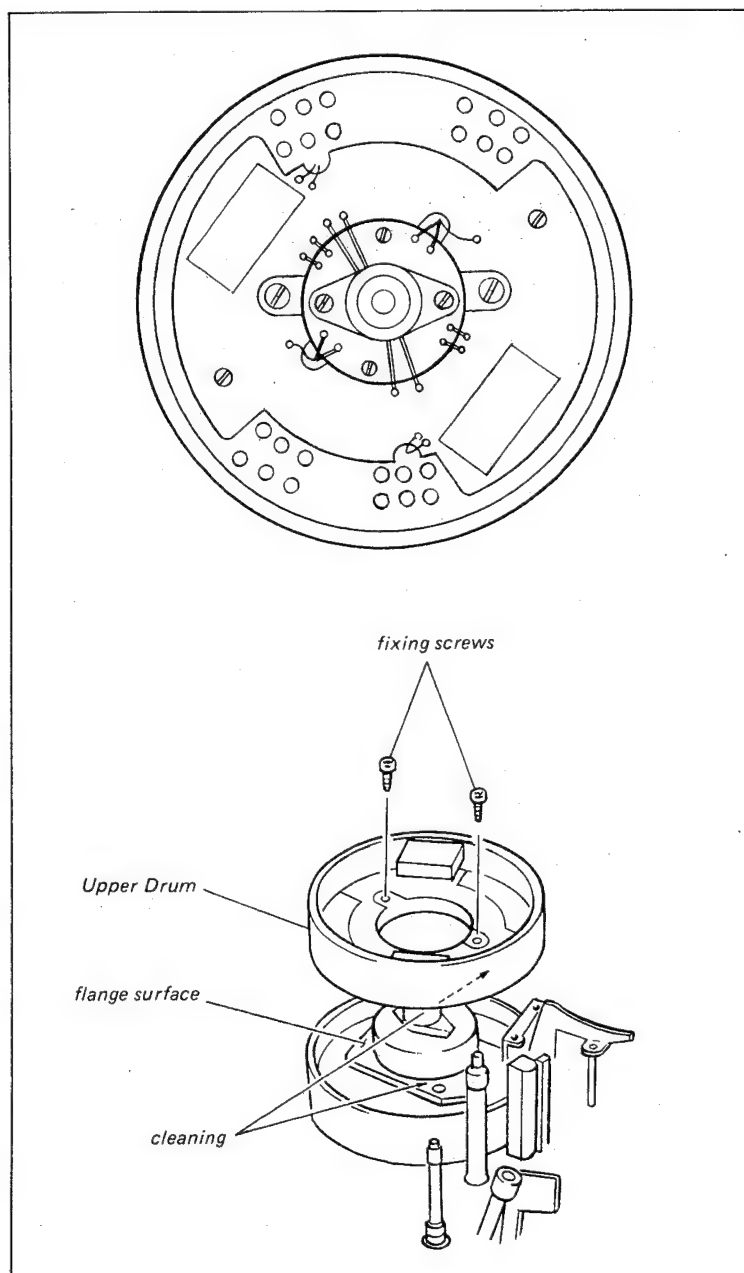
#### 4-1. REPLACEMENT OF THE ROTARY UPPER DRUM

- . The Rotary Video Heads and Confidence Heads cannot be replaced individually. The entire Rotary Upper Drum Assembly must be replaced when any one of these heads fail.
- . The Playback Pre-amplifier Board for the video signal, the PA-85 Board, is mounted on the Rotary Upper Drum, and the dynamic balance of the entire Rotary Upper Drum is perfectly adjusted in this condition. Therefore, the PA-85 Board should not be removed from the Rotary Upper Drum. When the PA-85 Board fails, replace the entire Rotary Upper Drum Assembly.

**Tool:** Drum eccentricity gauge (1)  
Drum eccentricity gauge (2)  
Drum eccentricity gauge (3)  
Drum eccentricity gauge (4)  
Reel table height adjustment base  
jig

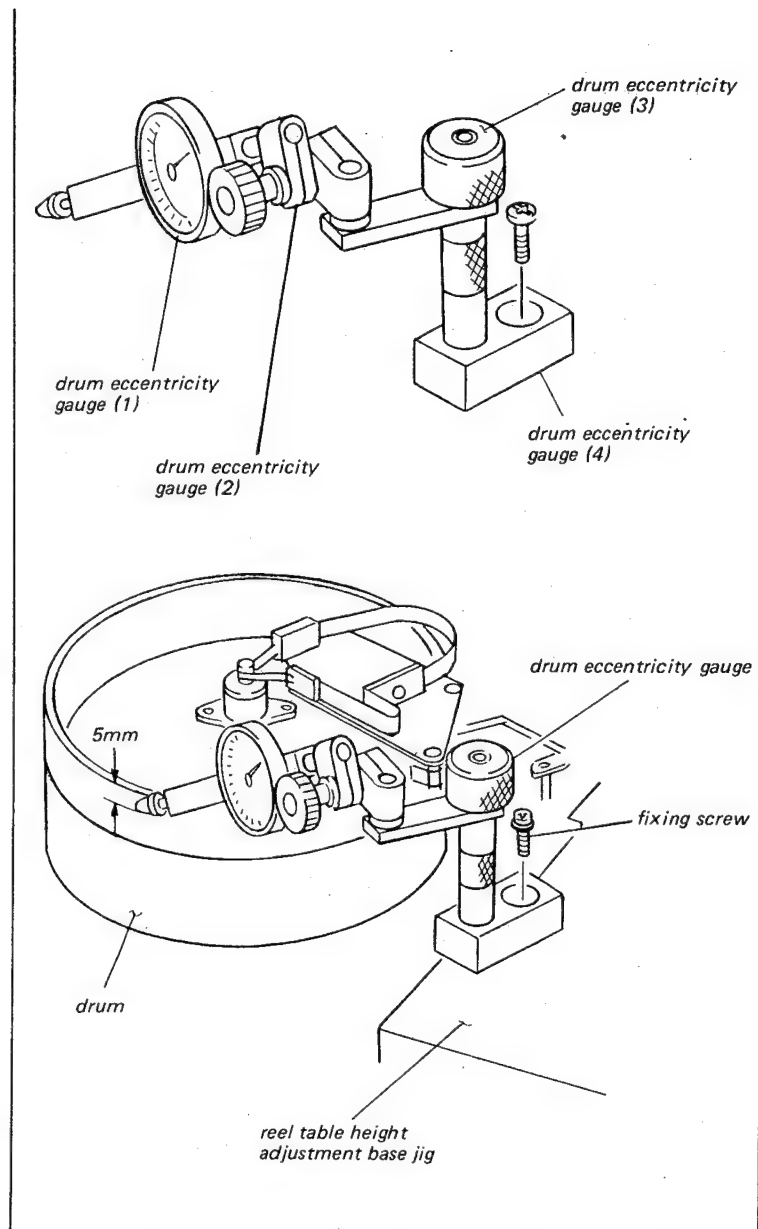
#### Replacement procedure:

- (1) Remove the fixing screws of the stay.
- (2) Remove the brush of the Slip-ring Block.
- (3) Unsolder the twelve leads from the round printed circuit board at the center of the drum.
- (4) Loosen the fixing screws of the Rotary Upper Drum, and remove the Rotary Upper Drum from the Head Drum Assembly.
- (5) Clean the matching surfaces of the flange and the new Rotary Upper Drum with a cloth moistened with a cleaning fluid. (If there is a spacer between drum and flange, it should be left in place, or a spacer of the same thickness should be re-installed.)
- (6) Place the Rotary Upper Drum so that the silk screened "CH-A" on the PA Board is close to the "A" side of the round printed circuit board. Thread the two screws snugly but not tight.



#### Adjustment procedure:

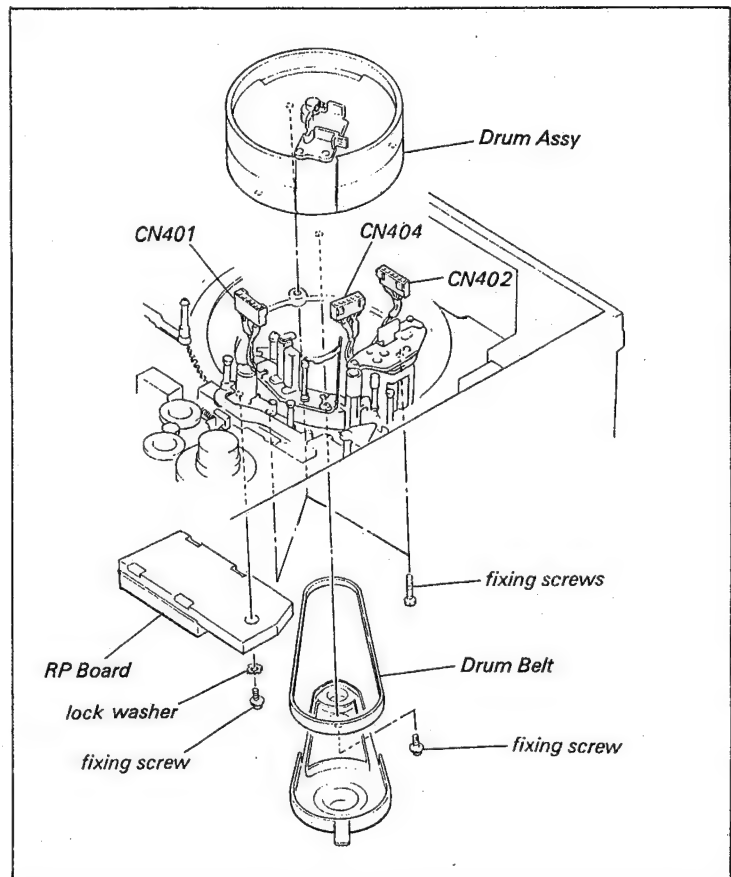
- (1) Place the reel table height adjustment base jig in the cassette's position.
- (2) Assemble the drum eccentricity gauges (1), (2), (3) and (4), as shown in the figure. Mount the assembled gauges on the reel table height adjustment base jig. Adjust the position of the gauge so that the tip probe are at a point about 5mm from the top edge of the Rotary Upper Drum.
- (3) Turn the Rotary Upper Drum slowly clockwise and check that the pointer deflection of the gauge is within 5 micron during one complete turn of the Rotary Upper Drum. If this specification is satisfied, proceed with Step (5). If it is not, perform Step (4).
- (4) Tap the Rotary Upper Drum with a nylon hammer or a screwdriver handle so that the gauge deflection remains within 5 micron.
- (5) After adjustment, tighten the two screws that secure the Rotary Upper Drum, alternately and gradually using a tightening torque of 8kg.cm.
- (6) After the screws are tightened, check again that the eccentricity of the Rotary Upper Drum is within 5 micron.
- (7) Solder the leads.
- (8) Mount the brush and stay.
- (9) After replacement, perform the adjustment in Section 4-17.



## 4-2. REPLACEMENT OF THE DRUM ASSEMBLY

### Replacement procedure:

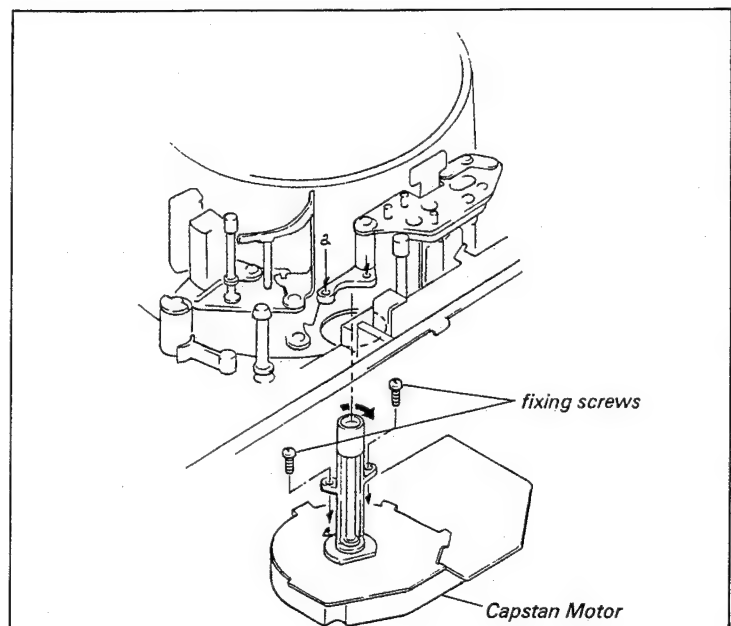
- (1) Remove the two fixing screws on the stay of the upper side of the unit.
- (2) Disconnect connector CN 403 of the brush on the SR-22 Board.
- (3) Remove the RP Board on the back side of the unit.
- (4) Remove the D Pulley Cover and then remove the Drum Belt.
- (5) Disconnect the three connectors which are connected to the Drum Block on the back side of the unit.
- (6) Remove the three fixing screws on the Drum Assembly.
- (7) Replace the Drum with a new one and twist the Drum in the clockwise direction when seen from the upper side of the unit, and tighten with the three fixing screws.
- (8) Install the parts in the reverse order of Steps (1) through (5).
- (9) After replacement, perform the adjustment in Section 4-17.



## 4-3. REPLACEMENT OF THE CAPSTAN MOTOR

### Replacement procedure:

- (1) Disconnect the CN1 on the board of the Capstan Motor.
- (2) Remove the two fixing screws on the Capstan Motor and then remove the Capstan Motor from the unit.
- (3) Tighten the new Capstan Motor into the unit with two screws but do not tighten.
- (4) Turn the Capstan Motor in the direction of the arrow and then tighten the two fixing screws.
- (5) After replacement, perform the adjustment in Section 4-17.

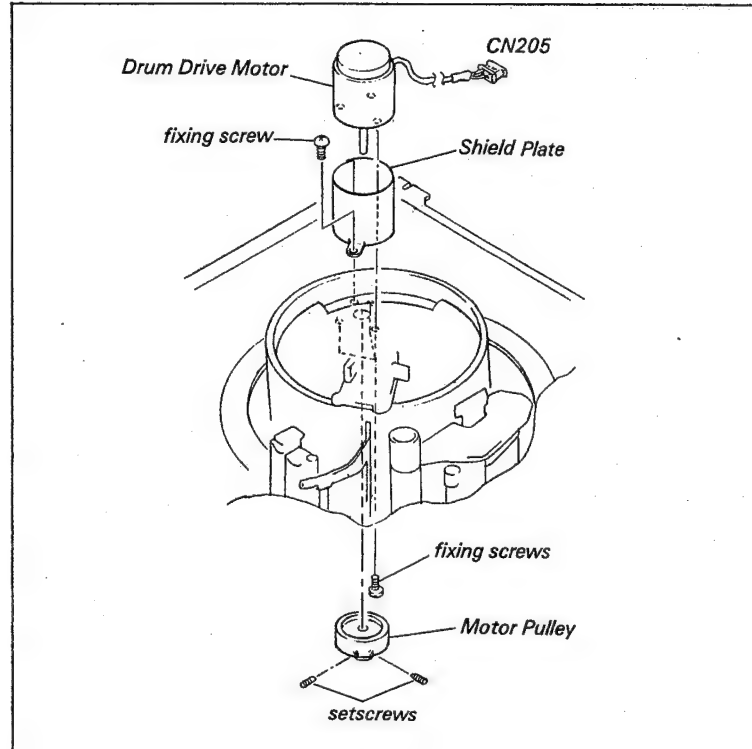




#### 4-4. REPLACEMENT OF THE DRUM DRIVE MOTOR

##### Replacement procedure:

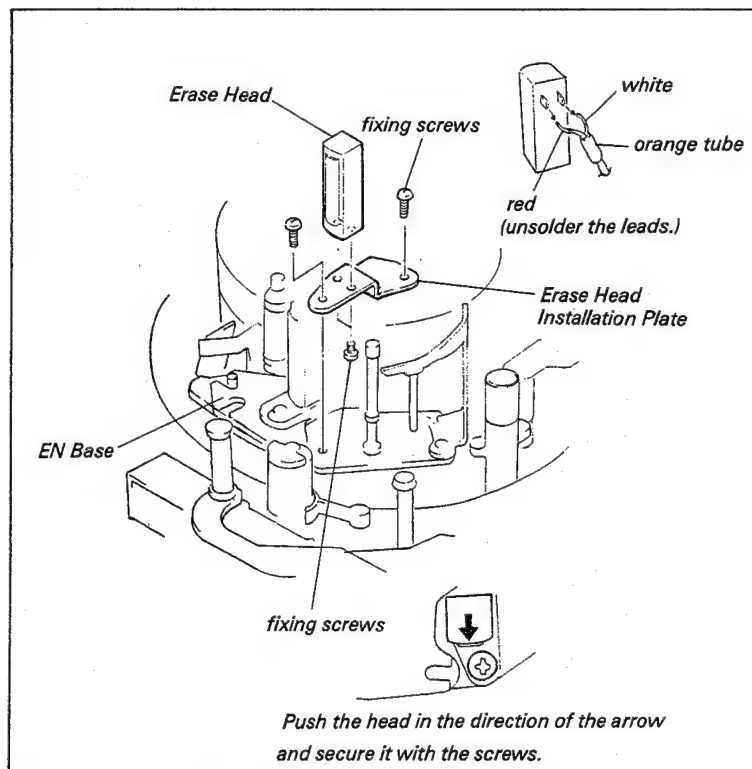
- (1) Remove the D Pulley Cover and then remove the Drum Belt.
- (2) Loosen the two set screws, and remove the Motor Pulley.
- (3) Remove the three fixing screws of the Motor.
- (4) Open the SV Board and remove connector CN205 of the motor.
- (5) Remove the Shield Plate of the upper side of the unit, and pull out the motor from the Shield Plate.
- (6) Replace the motor with a new one.
- (7) Install the parts in the reverse order of Steps (1) through (5).



#### 4-5. REPLACEMENT OF THE ERASE HEAD

##### Replacement procedure:

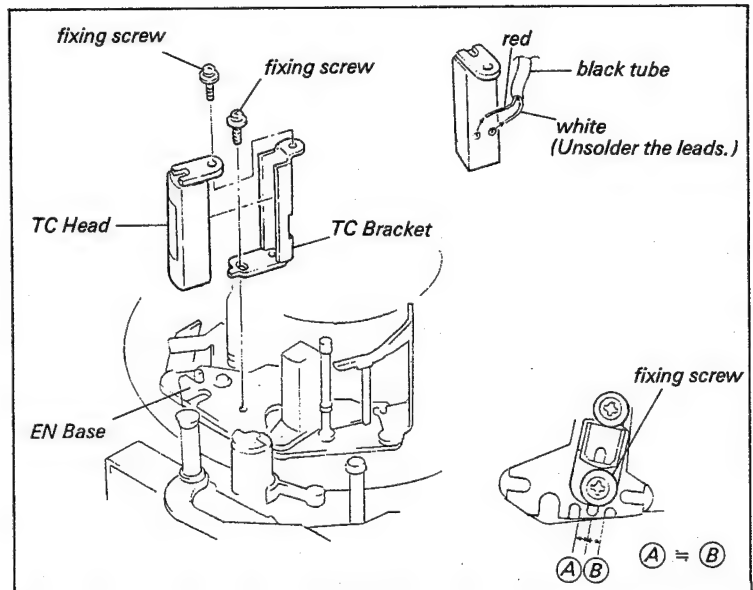
- (1) Loosen the two fixing screws and remove the Erase Head Bracket.
- (2) Unsolder the two leads on the Erase Head.
- (3) Loosen the two fixing screws and remove the Erase Head from the bracket.
- (4) Replace the Erase Head with a new one, and push the Erase Head in the direction of the arrow and secure it with the two fixing screws to the bracket.
- (5) Install the parts in the reverse order of Steps (1) and (2).
- (6) After replacement, perform the adjustment in Section 4-17.



#### 4-6. REPLACEMENT OF THE TC HEAD

**Replacement procedure:**

- (1) Remove a fixing screw of the TC Bracket from the EN Base and then remove the TC Bracket.
- (2) Unsolder the two leads on the TC Head.
- (3) Remove a fixing screw and then remove the TC Head from the TC Bracket.
- (4) Replace the TC Head with a new one.
- (5) Install the parts in the reverse order of Steps (1) through (3).
- (6) When installing the TC Bracket to the EN Base, secure the fixing screw in the portion as shown in the figure.
- (7) After replacement, perform the adjustment in Section 4-17.



#### 4-7. REPLACEMENT OF THE AUDIO/CTL HEAD

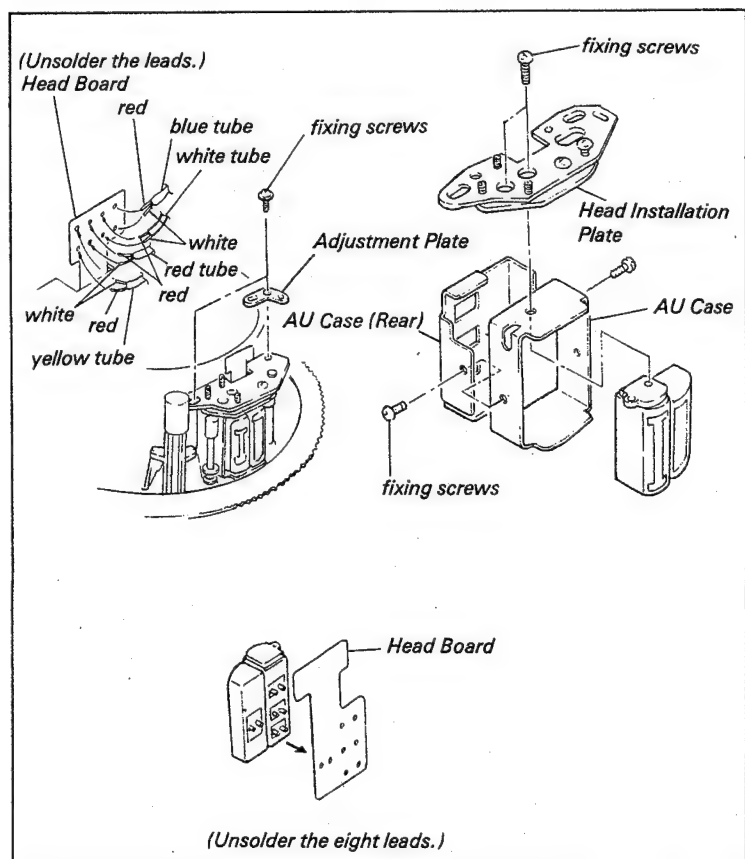
**Replacement procedure:**

- (1) Remove the two fixing screws of the Audio/CTL Head Block, then remove the Audio/CTL Head Block from the unit.
- (2) Unsolder the eight leads on the PC Board of the Audio/CTL Head.
- (3) Remove the two fixing screws as shown in the figure and then remove the AU Case (Rear).
- (4) Remove the two fixing screws of head, and then remove the Audio/CTL Head and AU Case from the Bracket of head.
- (5) Unsolder the PC Board of the Audio/CTL Head.
- (6) Replace the Audio/CTL Head with a new one.
- (7) Install the Audio/CTL Head in the reverse order of Steps (1) through (5).

Note: 1. Solder the Head PC Board which is pushed against the back side of the head.

2. Tighten the screws so that the AU Case (Rear) is pushed against the Bracket of head and AU Case.

- (8) After replacement, perform the adjustment in Section 4-17.



#### 4-8. REPLACEMENT OF THE GUIDE ROLLER ON THE THREADING RING

- There are four guide rollers on the Threading Ring. This section provides replacement of the four guide rollers.

**Tool:** Thickness gauge (0.2 mm thick)

##### Replacement procedure:

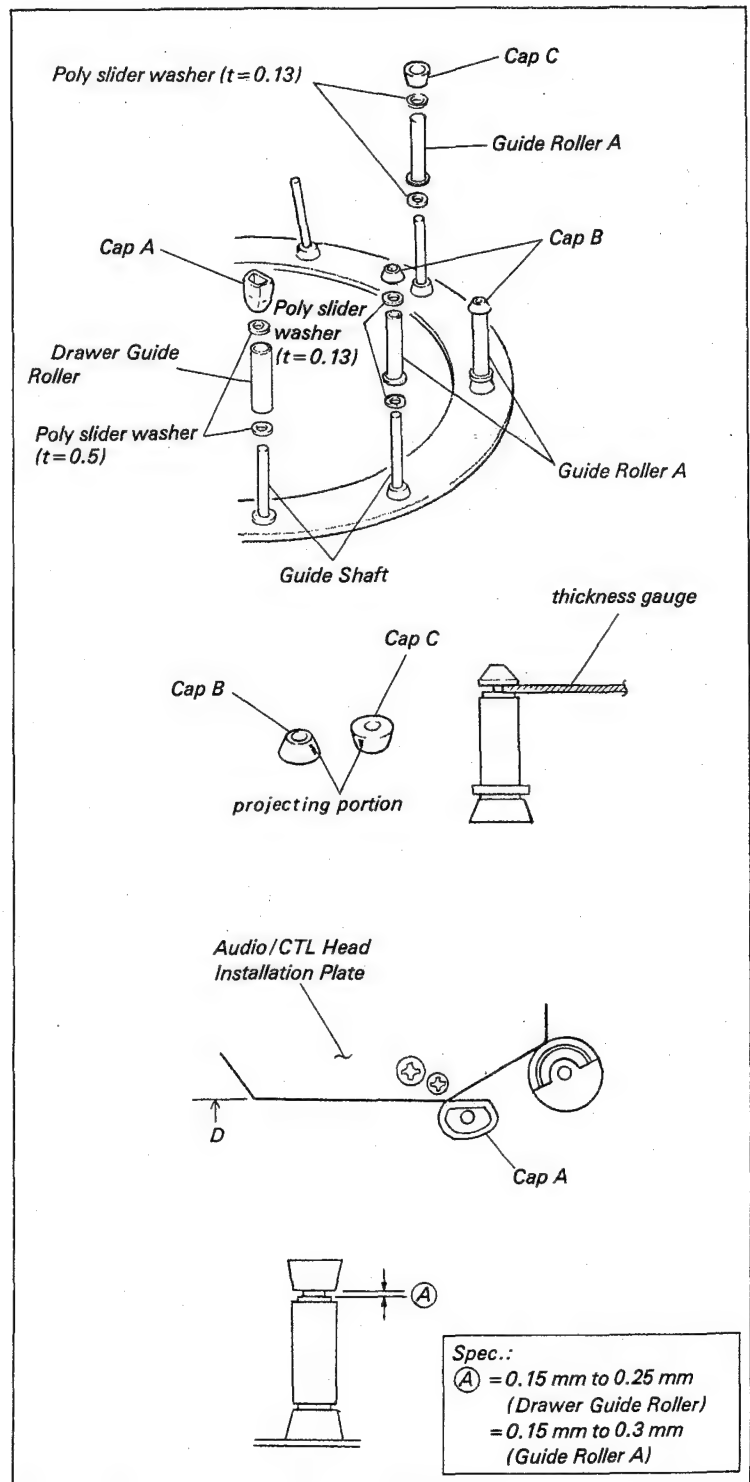
- Turn the pulley on the Gear Box by hand until the Guide Roller which is replaced moves in the front of the center of the Take-up Reel Table.
- Hold the Threading Ring, and pull out the Cap and remove the Guide Roller (Be careful not to bend the guide shaft when pulled out cap.)
- Clean the guide shaft with a cloth moistened with cleaning fluid.
- Replace the Guide Roller with a new one and assemble it. (At the same time, replace the Cap with a new one.) Place the 0.2 mm thickness gauge between the Cap (A, B or C) and the Guide Roller, and push the Cap to the shaft until the Cap touches the thickness gauge. (At the same time, be careful not to deform the Threading Ring, and to bend the guide shaft.)

##### Direction of installing the Cap

**Cap A** Match the edge of the Audio/CTL Head Bracket (D plane) with the flat plane of the Cap A. When not matching, turn the Cap A. (Turn the Threading Ring after assembling the Cap A. Confirm the positional relationship between the Head Bracket and the Cap A at the position in the figure.)

**Cap B, C** The projecting portion of the Cap B or C faces the circle center of the Threading Ring.

- Confirm that the Guide Roller rotates smoothly and the clearance A meets the each required specification.
- After replacement, perform the adjustment in Section 4-17.



#### 4-9. REPLACEMENT OF THE PINCH ROLLER

##### Replacement procedure:

- (1) Turn the Pulley of the Gear Box Block by hand and move the Threading Ring from the position of the unthreading state in about 90 degrees.
- (2) Remove the E Ring and then remove the Pinch Arm Ass'y from the Threading Ring.
- (3) Replace the Pinch Arm Ass'y with a new one.
- (4) Assemble it and adjust the position with the adjustment washer so that the specification is met.

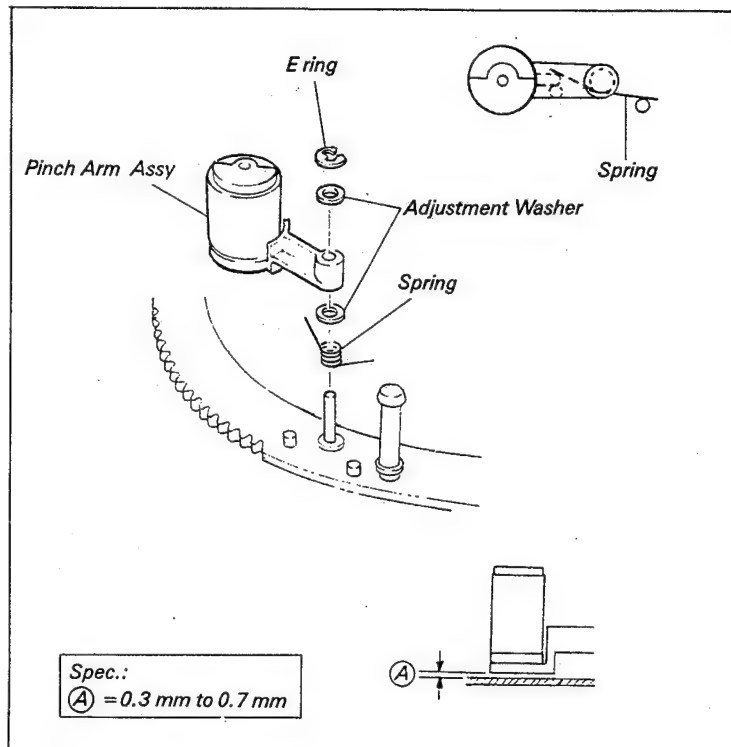
.Adjustment washer

3-701-437-01;

WASHER, POLY 2 MM DIA., 0.13 T

3-701-437-11;

WASHER, POLY 2 MM DIA., 0.25 T

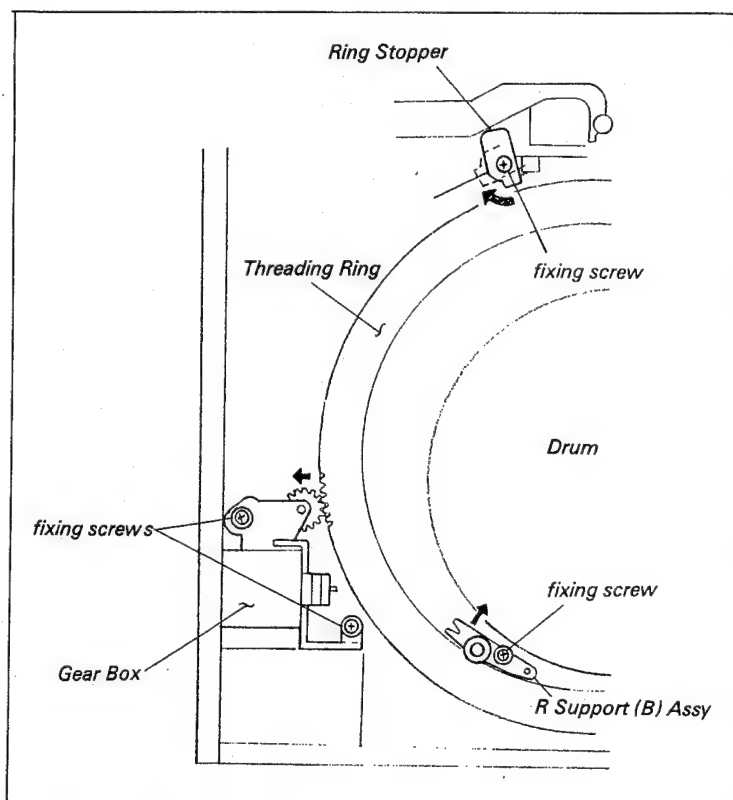



#### 4-10. REPLACEMENT OF THE THREADING RING

##### Replacement procedure:

- (1) Disconnect the connectors of the Audio/CTL Head, TC Head, Erase Head and harness of SE-18 Board, and pull out each harness to the upper side of unit.

- Process:**
- (i) Remove the four fixing screws of the Connector Panel Assy and open the VA Board at the back of unit.
  - (ii) Disconnect the CN521 on the VA Board, the CN808 on the HN Board and the CN113, CN114 and CN115 on the SY Board.
  - (iii) Pull out each harness which is disconnected the connectors to the upper side. (Remove harness clamber which secure the harness.)

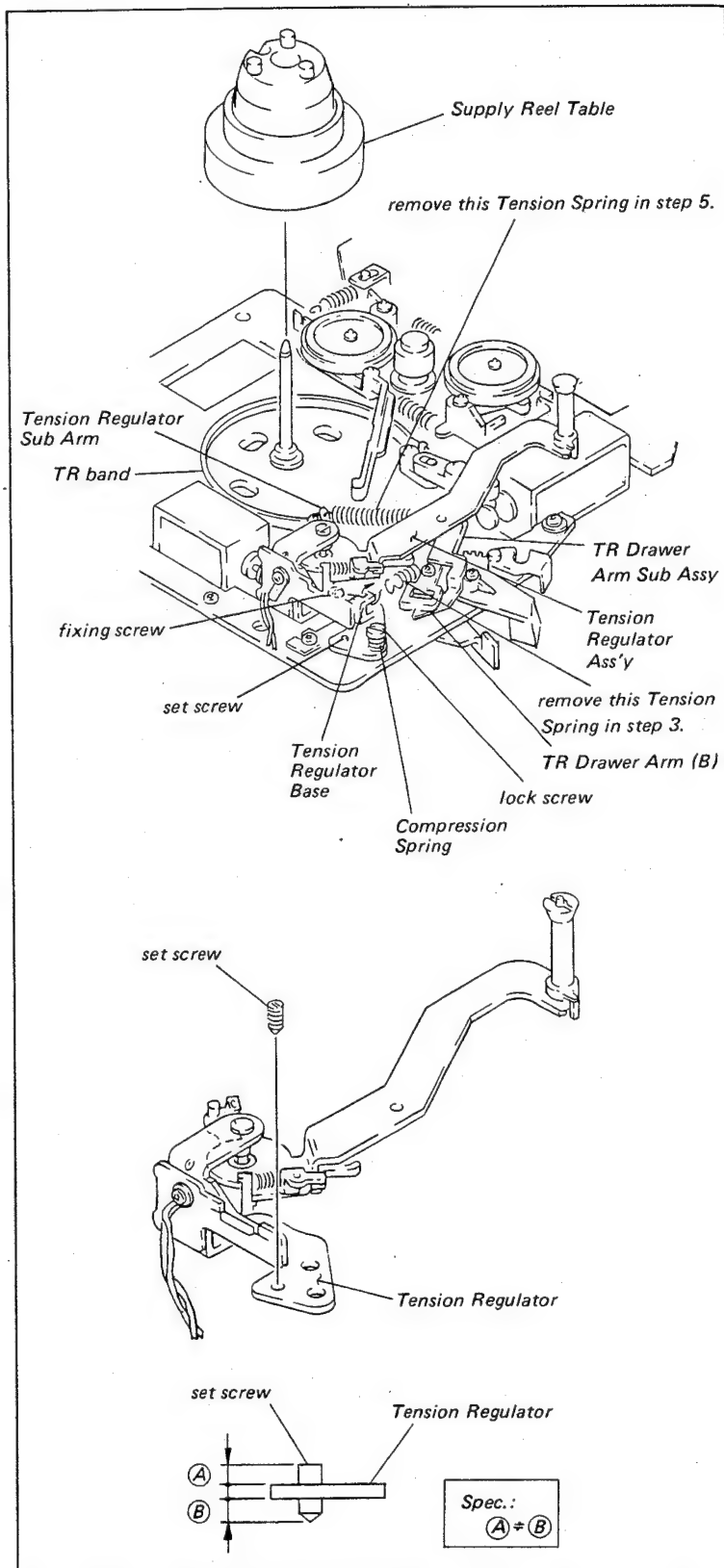


- 
- (2) Remove the harness clamper which secure the harness on the upper side of the unit.
  - (3) Remove the CN403 of the brush.
  - (4) Remove the two fixing screws of the stay and then remove the stay.
  - (5) Turn the pulley on the Gear Box by hand and move the Threading Ring from the position of the unthreading state in about 90 degrees.
  - (6) Loosen the two fixing screws of the Gear Box and cancel the engagement of the Threading Ring and the gear on the Gear Box.
  - (7) Loosen the fixing screw of the R Support (B) Assy and cancel the hold of threading ring.
  - (8) Loosen the fixing screw and fully turn the Ring Stopper as shown in the direction of the arrow.
  - (9) Remove the Threading Ring and replace it with a new one.
  - (10) Install the parts in the reverse order of Steps (1) through (8).  
(Bind the harness to the original position with harness clampers.)
  - (11) After replacement, perform the adjustment in Section 4-17.

#### 4-11. REPLACEMENT OF THE TENSION REGULATOR

##### Replacement procedure:

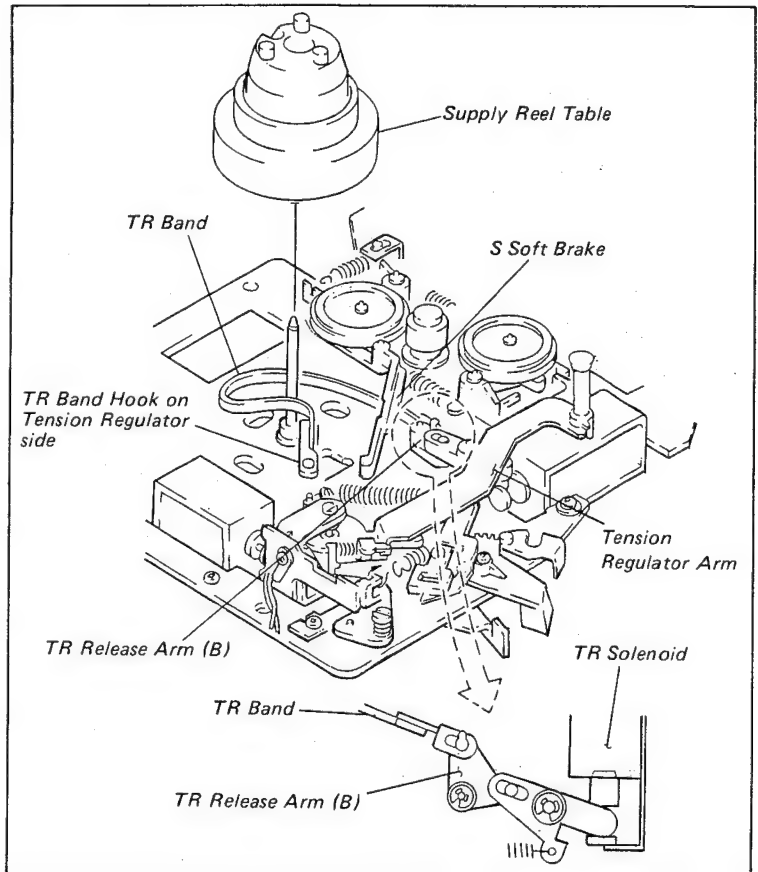
- (1) Disconnect Connector CN807 of the HN-102 Board.
- (2) Remove the Supply Reel Table.
- (3) Remove the spring from between the TR Drawer Arm (B) and the Spring Holder of the Tension Regulator Block.
- (4) Remove the TR Band from the Tension Regulator.
- (5) Remove the spring of the Tension Regulator Sub Arm.
- (6) Remove the lock screw and the fixing screw, and remove the Tension Regulator Block.
- (7) Check that the position of the set screw of new Tension Regulator Block meets the required specification, as shown in the figure.
- (8) Install the new Tension Regulator on the chassis with the fixing screw, compression spring and lock screw. At this time, note the following points:
  - (i) Install the Tension Regulator base so that it is parallel to the chassis.
  - (ii) Turn the lock screw back 180 degrees from the position at which it is tight.
- (9) Perform Steps (1) to (6) in reverse order.
- (10) After replacement, perform the adjustment in Section 4-17.



#### 4-12. REPLACEMENT OF THE TR BRAKE BAND

##### Replacement procedure:

- (1) Remove the Supply Reel Table.
- (2) Remove the TR Band Hook from the Tension Regulator.
- (3) Remove the TR Band Hook from the TR Release Arm (B).
- (4) Fasten the TR Band Hook of the new TR Brake Band on the TR Release Arm (B) without damaging the TR Brake Band.
- (5) Pass it under the S Soft Brake without damaging the TR Brake Band.
- (6) Fasten the TR Band Hook on the Tension Regulator.
- (7) Install the Supply Reel Table.
- (8) After replacement, perform the adjustment in Section 4-17.



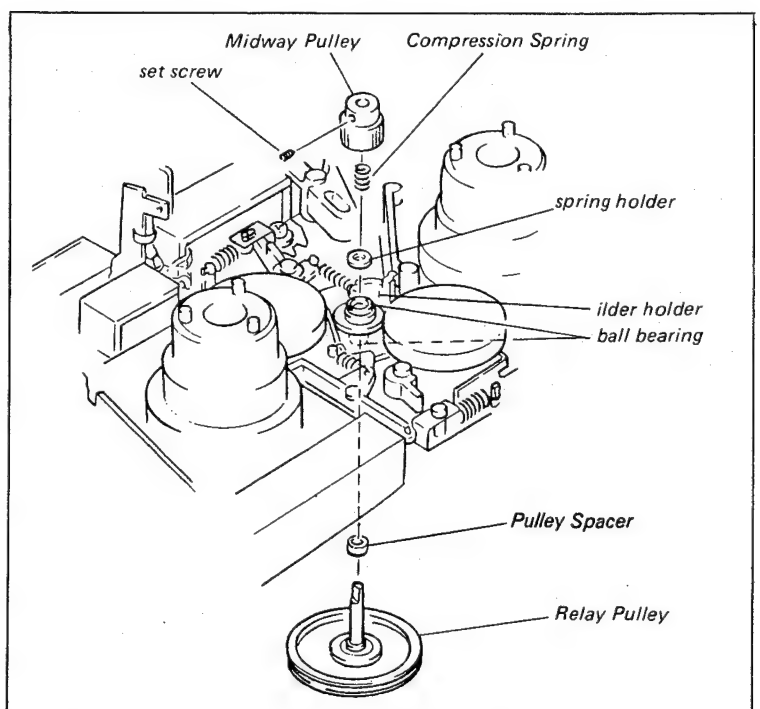
#### 4-13. REPLACEMENT OF THE RELAY PULLEY

**Tool:** Allen wrench

(across flat has 1.27mm)

##### Replacement procedure:

- (1) Loosen the set screw of the Midway Pulley and remove the Relay Pulley and Pulley Spacer.
- (2) Check that the two ball bearings are installed in the Idler Holder.
- (3) Insert the Relay Pulley and Pulley Spacer.
- (4) Insert the Spring Holder, Compression Spring and Midway Pulley, in order.
- (5) Insert the set screw of the Midway Pulley into the D cut portion of the pulley shaft.
- (6) Align the ends of the Midway Pulley and the pulley shaft, and tighten the set screw.

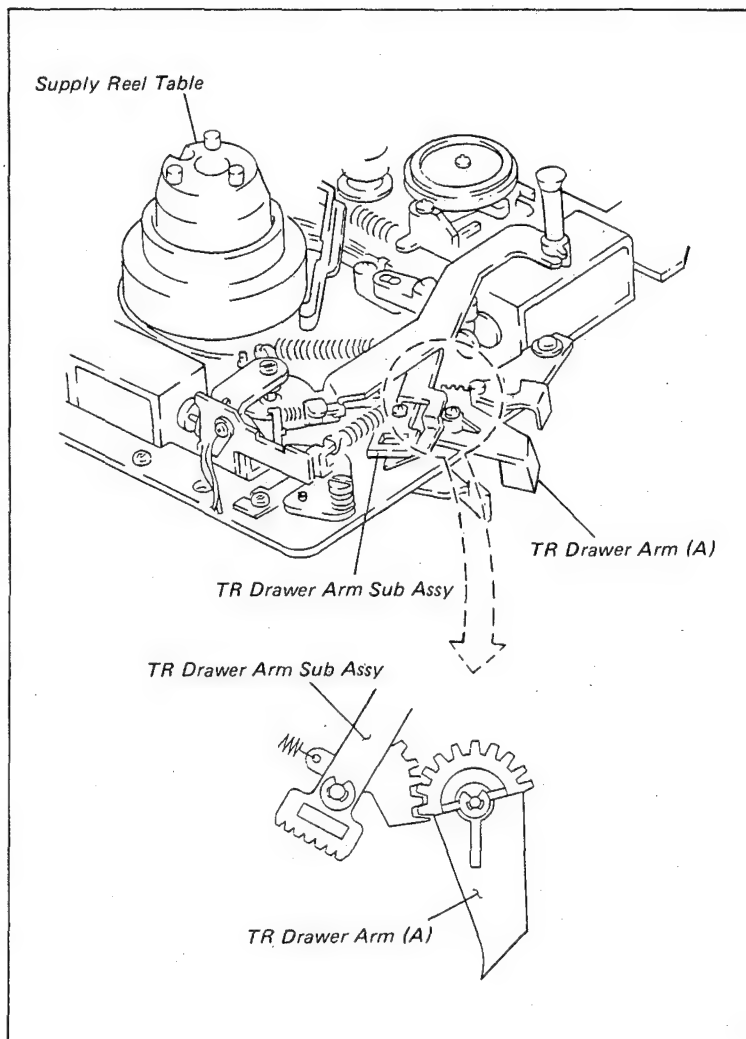




#### 4-14. REPLACEMENT OF THE TR DRAWER ARM (A) OR SUB ASSY

##### Replacement procedure:

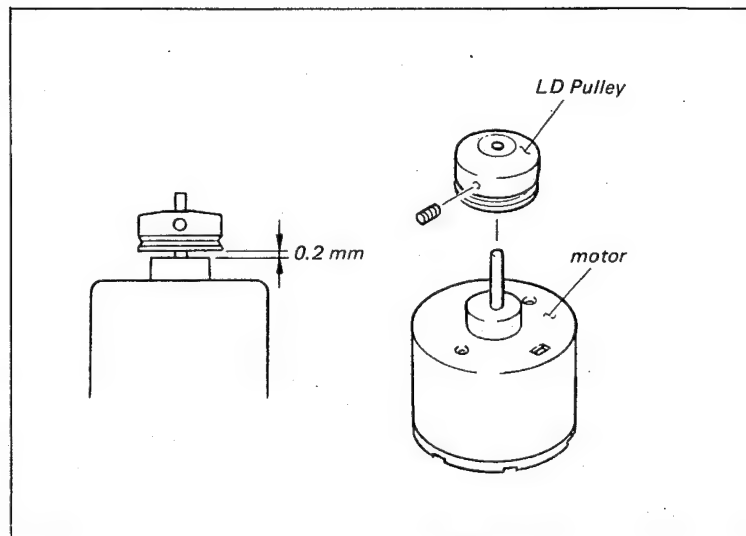
- (1) When replacing the TR Drawer Arm (A) or Sub Assy, assemble TR Drawer Arm (A) and Sub Assy to meet the positional relationship, as shown in the figure.
- (2) After replacement, perform the adjustment in Section 4-17.



#### 4-15. REPLACEMENT OF THE THREADING MOTOR

##### Replacement procedure:

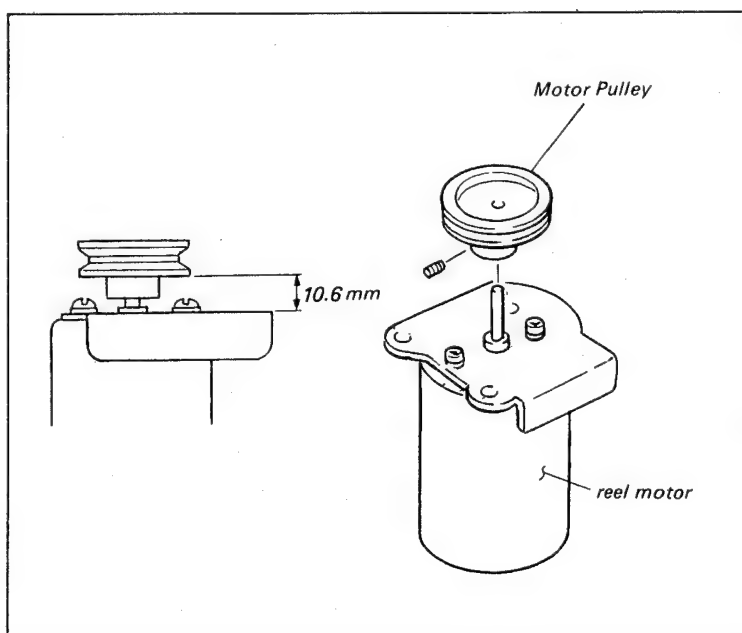
- (1) Disconnect connector CN209/SV Board.
- (2) Remove the gear box block from the unit.
- (3) Remove the LD Pulley from the defective threading motor.
- (4) Replace the new motor.
- (5) Install the LD Pulley. Adjust the position of the LD Pulley so that the clearance between the LD Pulley and the motor meets the required specification.
- (6) After replacement, perform the adjustment in Section 4-17.



#### 4-16. REPLACEMENT OF THE REEL MOTOR

##### Replacement procedure:

- (1) Disconnect connector CN210/SV Board.
- (2) Remove the Reel Motor Block.
- (3) Remove the Motor Pulley from the defective Reel Motor.
- (4) Install this pulley in the new motor.
- (5) Adjust the position of the Motor Pulley so that the clearance between the Motor Pulley and motor meets the required specification.



#### 4-17. ITEMS TO BE ADJUSTED AFTER MAIN PARTS REPLACEMENT

(Numbers in parenthesis refer to Section Nos.)

##### Replacement of Upper Drum Assembly

Video Tracking Adjustment (7-6) → CTL Head Position Adjustment (7-10) → TC Head Position Adjustment (7-14) → Video Head Dihedral Adjustment (7-16) → Drum Lock Phase Adjustment (9-7) →  $\phi^2$ Phase Adjustment (9-8) → Switching Position Adjustment (9-5) → Confidence Switching Position Adjustment (9-6) → Picture Splitting Compensation Adjustment (9-9) → Drum AFC Bias Adjustment (9-11) → Drum AFC Transient Adjustment (9-12) → Video System Adjustment

##### Replacement of Drum Assembly

Video Tracking Adjustment (7-6) → CTL Head Position Adjustment (7-10) → TC Head Position Adjustment (7-14) → Video Head Dihedral Adjustment (7-16) → Drum Lock Phase Adjustment (9-7) →  $\phi^2$ Phase Adjustment (9-8) → Switching Position Adjustment (9-5) → Confidence Switching Position Adjustment (9-6) → Picture Splitting Compensation Adjustment (9-9) → Drum AFC Bias Adjustment (9-11) → Drum AFC Transient Adjustment (9-12) → Video System Adjustment

##### Replacement of Capstan Motor

Pinch Press Mechanism Block Position Adjustment (5-9-1) → Capstan Free Speed Adjustment (9-1) → Capstan Fast Lock Phase Adjustment (9-4) → Video Tracking Adjustment (check)(7-6)

##### Replacement of AUDIO/CTL Head

Audio/CTL Head Zenith Adjustment (7-7) → Audio Head Height Adjustment (7-8) → Audio Head Phase Adjustment (7-9) → Video Tracking Adjustment (7-6) → CTL Head Position Adjustment (7-10) → Audio System Adjustment

##### Replacement of Erase Head

Erase Head Zenith Adjustment (7-5) → Video Tracking Adjustment (check)(7-6) → Full Erase OSC Frequency/Level Adjustment (10-8)

##### Replacement of TC Head

TC Head Zenith Adjustment (7-11) → TC Head Hight Adjustment (7-12) → TC Head Tape-to-Head Contact Adjustment (7-13) → Video Tracking Adjustment (check)(7-6) → TC Head Position Adjustment (7-14) → Time Code REC Current Adjustment (12-1)

##### Replacement of Guide Roller on Threading Ring

Video Tracking Adjustment (check)(7-6)

#### **Replacement of Pinch Roller**

Tape Stopper Position Adjustment (check)(5-7-5) → Pinch Press Mechanism Block Position Adjustment (5-9-1) → Video Tracking Adjustment (check)(7-6)

#### **Replacement of Tension Regulator**

S-Tension Regulator Arm Slantness Adjustment (7-1) → S-Tension Regulator Arm Operating Position Adjustment (5-8) → TR Stopper A Clearance Adjustment (5-8-2) → Video Tracking Adjustment (7-6)

#### **Replacement of TR Brake Band**

Play Back Tension Adjustment (6-3)

#### **Replacement of TR Drawer Arm (A)**

TR Stopper A Clearance Adjustment (check)(5-8-2)

#### **Replacement of Threading Motor**

Threading Ring Engaging Adjustment (5-7-2)

#### **Replacement of Threading Ring**

Threading Ring Rotation Adjustment (5-7-1) → Threading Ring Engaging Adjustment (5-7-2) → Threading/Unthreading Switch Position Adjustment (5-7-3) → Threading Ring Stop Position Adjustment (5-7-4) → Pinch Press Mechanism Block Adjustment (5-9-1) → Video Tracking Adjustment (7-6)

## SECTION 5

### LINK AND DRIVE SYSTEM ALIGNMENT

#### 5-1. REEL TABLE HEIGHT ADJUSTMENT

. Because the Reel Table Height Adjustment functions as a reference in the entire tape run system, it is required that these adjustments be performed carefully.

**Mode:** Unthreading end

**Tool:** Reel table height check base jig  
Reel table height check jig

**Check procedure:**

- (1) Check that the "SO" and "TO" probes of the reel table height check jig slide over their respective Reel Table Flanges and that there is clearance between the flange and the probe.
- (2) Check that the "SX" and "TX" probes are blocked by the flange.  
.Use the "SO" and "SX" probes for the Supply Reel Table.  
.Use the "TO" and "TX" probes for the Take-up Reel Table.

**Adjustment procedure:**

- (1) Adjust with the washer under the Reel Table to meet the required specification.

**Adjusting washer:**

Poly Slider Washer, 3mm dia.

0.13 mm thick : 3-701-439-01

0.25 mm thick : 3-701-439-11

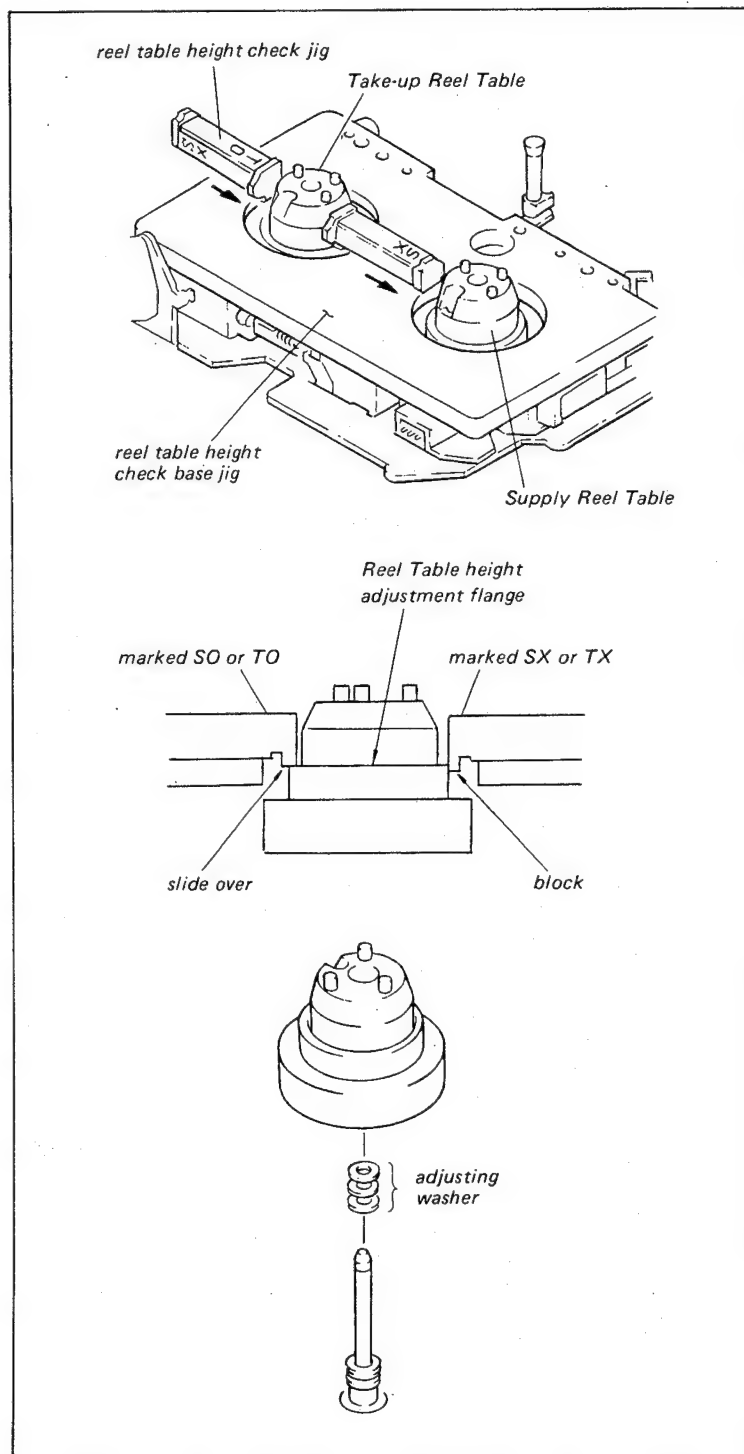
0.5 mm thick : 3-701-439-21

Guide Roller Washer, 3mm dia.

0.05 mm thick : 3-621-910-01

0.1 mm thick : 3-621-910-11

- . Don't put the Guide Roller Washer in the top position.



## 5-2. BRAKE SYSTEM ADJUSTMENT

### 5-2-1. T Soft Brake Clearance Adjustment

**Mode:** Unthreading end

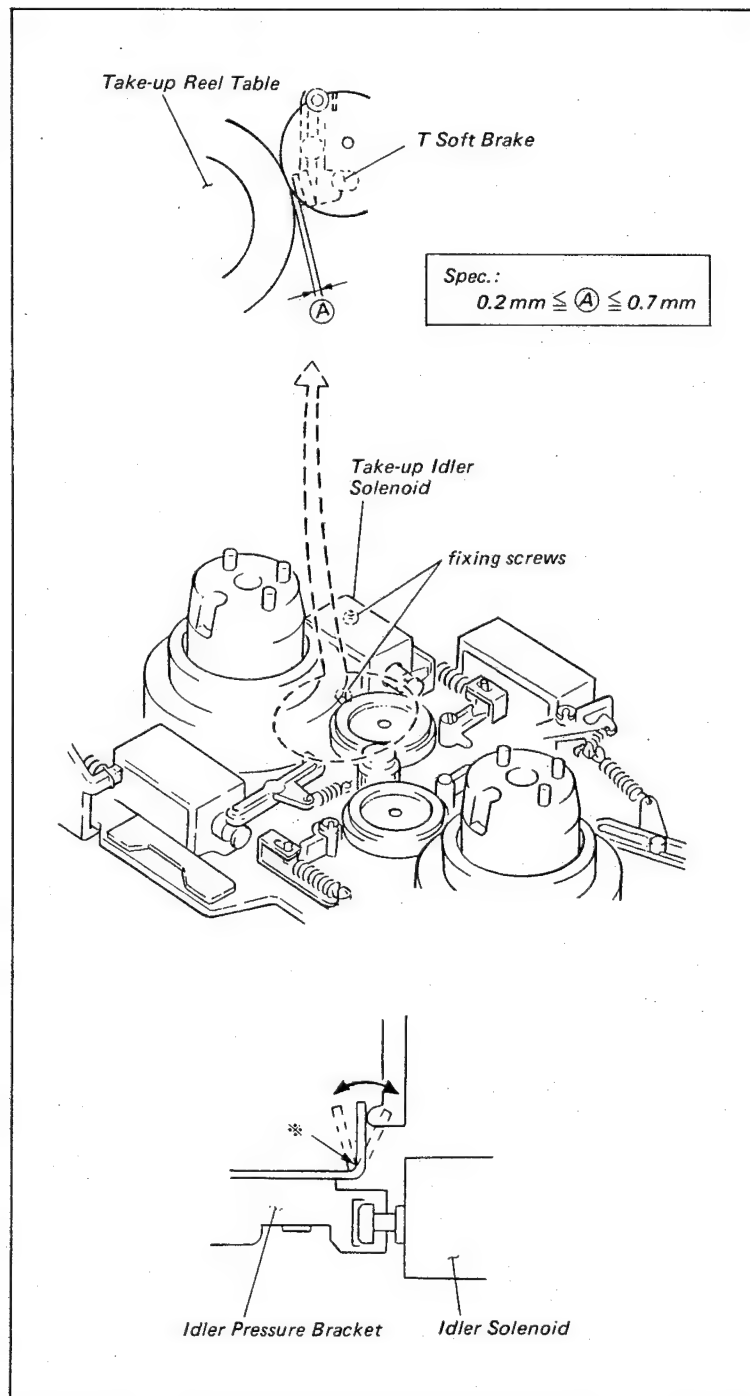
**Tool:** Thickness gauge

**Check procedure:**

- (1) Push the plunger of the T Idler Solenoid in as far as possible by hand. Check that the clearance between Take-up Reel Table and T Soft Brake meets the required specification.

**Adjustment procedure:**

- (1) Bend the ※ marked portion of the Idler Pressure Bracket in the direction of the arrow so that it meets the required specification.



## 5-2-2. S Soft Brake Clearance Adjustment (Unthreading end mode)

**Mode:** Unthreading end

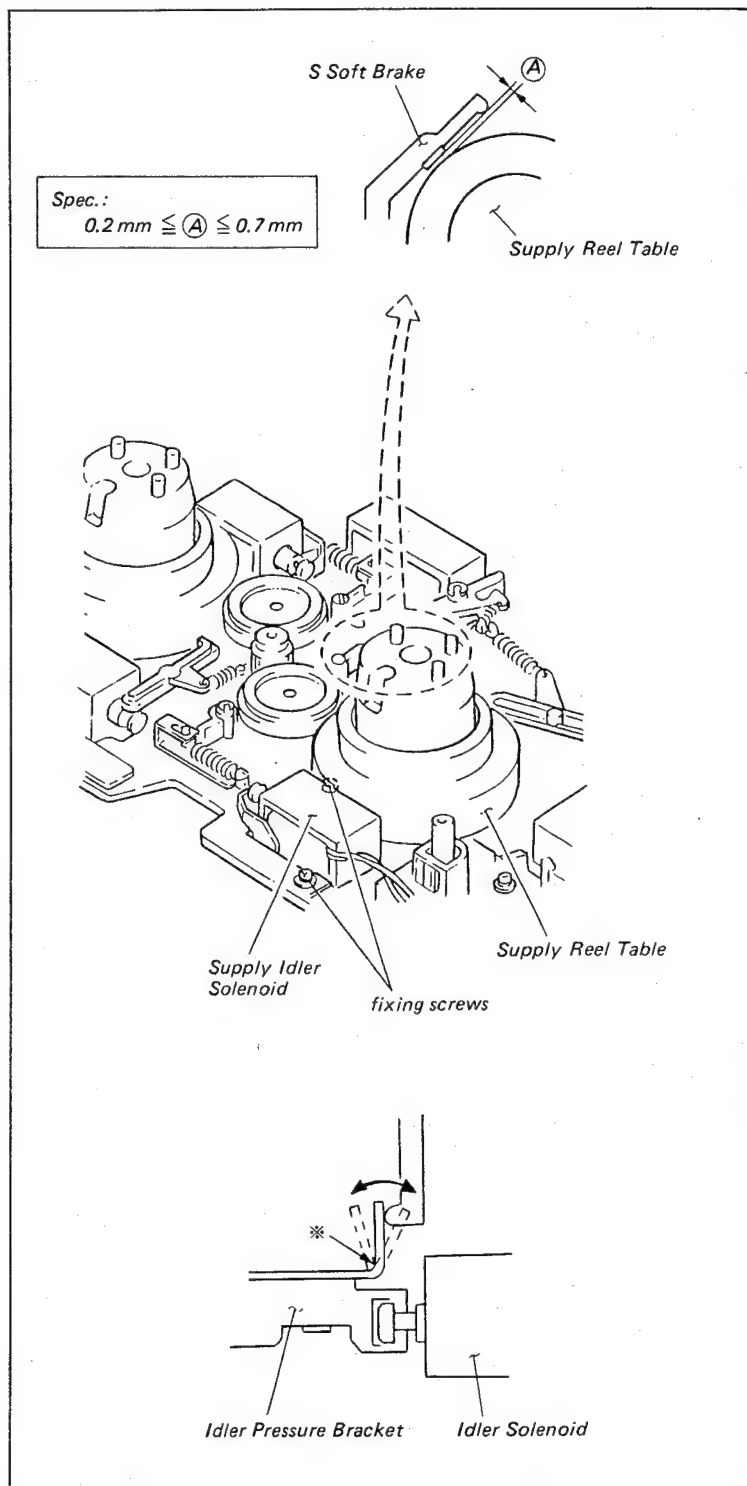
**Tool:** Thickness gauge

### Check procedure:

- (1) Push the plunger of the S Idler Solenoid in as far as possible by hand. Check that the clearance between the Supply Reel Table and the S Soft Brake meets the required specification.

### Adjustment procedure:

- (1) Bend the ※ marked portion of the Idler Pressure Bracket in the direction of the arrow so that it meets the required specification.



### 5-2-3. S Soft Brake Clearance Adjustment (Threading end mode)

**Mode:** Threading end

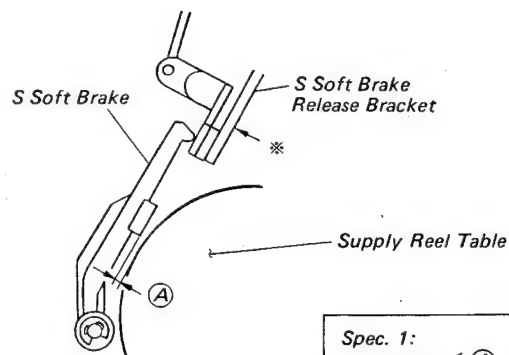
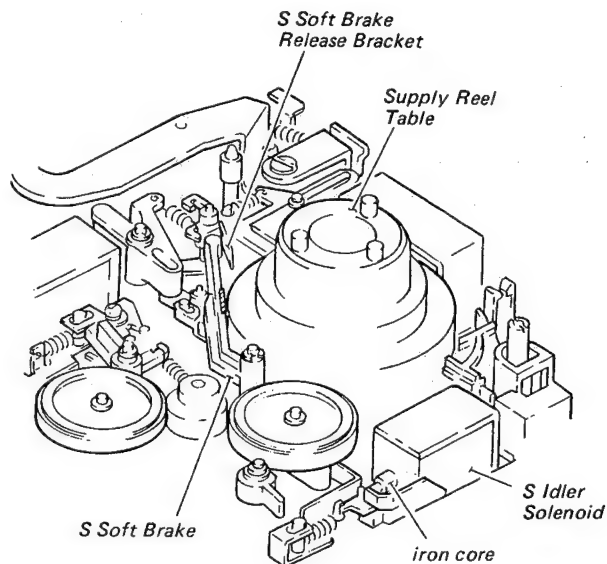
**Tool:** Thickness gauge

#### Check procedure:

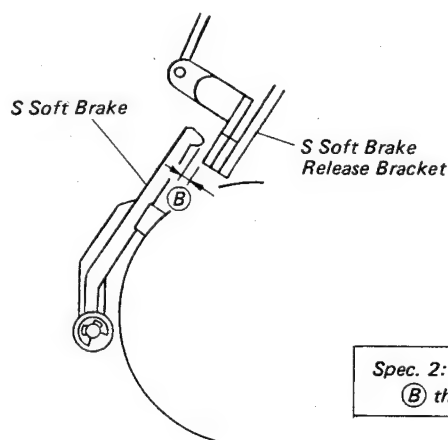
- (1) Push the plunger of the Pinch Solenoid in as far as possible by hand. Check that the clearance between the Supply Reel Table and the S Soft Brake meets the required specification (1).
- (2) Turn the Supply Reel Table by hand. Check that the clearance between the Supply Reel Table and the S Soft Brake meets the required specification (1) in every position.
- (3) Release the plunger of the Pinch Solenoid from the fully engaged position. Check that the clearance between the S Soft Brake Arm and the S Soft Brake Release Bracket meets the required specification (2).

#### Adjustment procedure:

- (1) Bend the ※ marked portion of the S Soft Brake Release Bracket in the direction of the arrow so that it meets the required specifications (1) and (2).



Spec. 1:  
 $0.4 \text{ mm} \leq (A) \leq 0.8 \text{ mm}$



Spec. 2:  
 (B) there is clearance



#### 5-2-4. T Main Brake Clearance Adjustment

**Mode:** Unthreading end

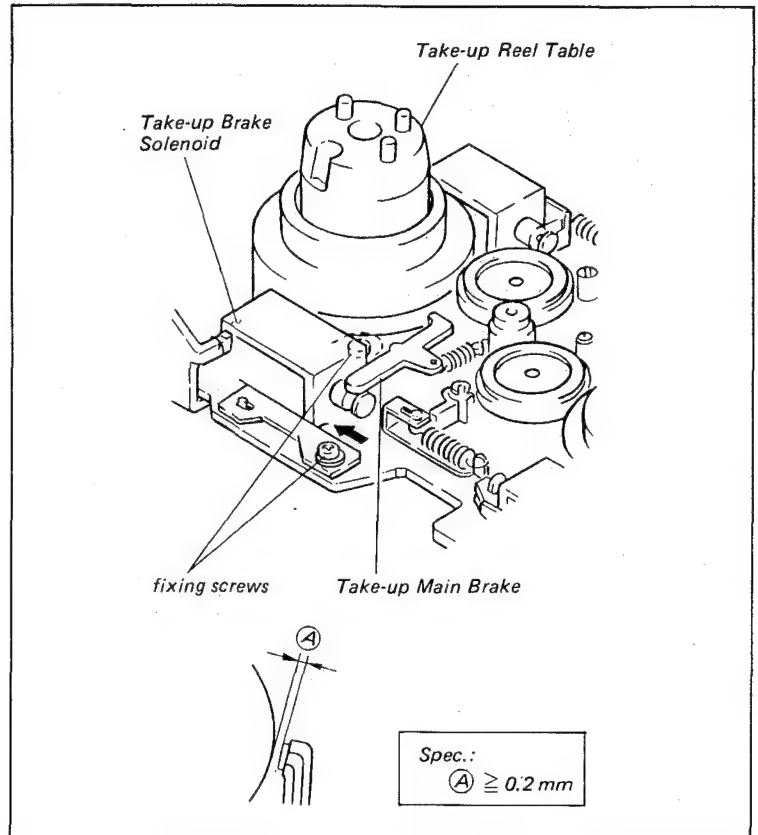
**Tool:** Thickness gauge

**Check procedure:**

- (1) Push the plunger of the Take-up Brake Solenoid in as far as possible by hand. Check that the clearance between the Take-up Reel Table and the Take-up Main Brake meets the required specification.

**Adjustment procedure:**

- (1) Adjust the position of the brake solenoid to meet the required specification.



#### 5-2-5. S Main Brake Clearance Adjustment

**Mode:** Unthreading end

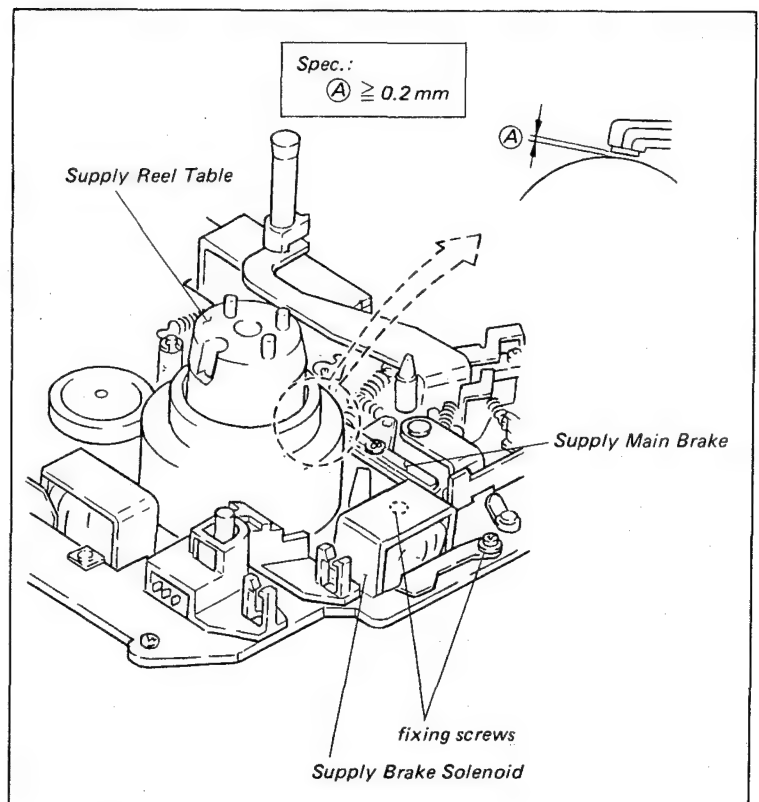
**Tool:** Thickness gauge

**Check procedure:**

- (1) Push the plunger of the S Brake Solenoid in as far as possible by hand. Check that the clearance between the Supply Reel Table and the Supply Main Brake meets the required specification.

**Adjustment procedure:**

- (1) Adjust the position of the Brake Solenoid to meet the required specification.



### 5-3. IDLER SYSTEM ADJUSTMENT

#### 5-3-1. T/S Idler Solenoid Mounting Position Adjustment

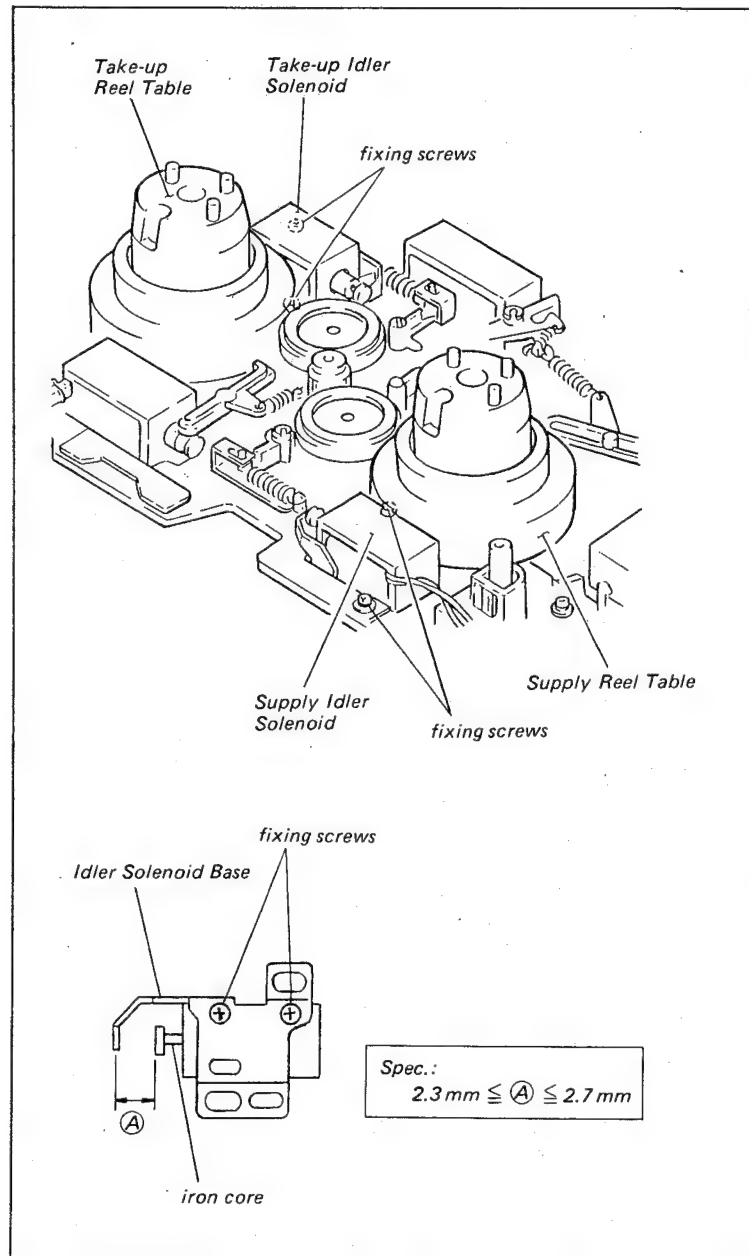
**Mode:** Unthreading end

**Check procedure:**

- (1) Push the plunger of the S Idler Solenoid in as far as possible by hand. Check that the clearance between the end of the plunger and the Idler Solenoid Base meets the required specification.
- (2) Repeat Step (1) with the T Idler Solenoid. Check that the clearance between the end of the plunger of the T Idler Solenoid and the Idler Solenoid Base meets the required specification.

**Adjustment procedure:**

- (1) Remove the Idler Solenoid Block from the machine.
- (2) Adjust the mounting position of the Idler Solenoid to meet the required specification.



### 5-3-2. T Idler Pressure Bracket Clearance Adjustment

**Mode:** Unthreading end

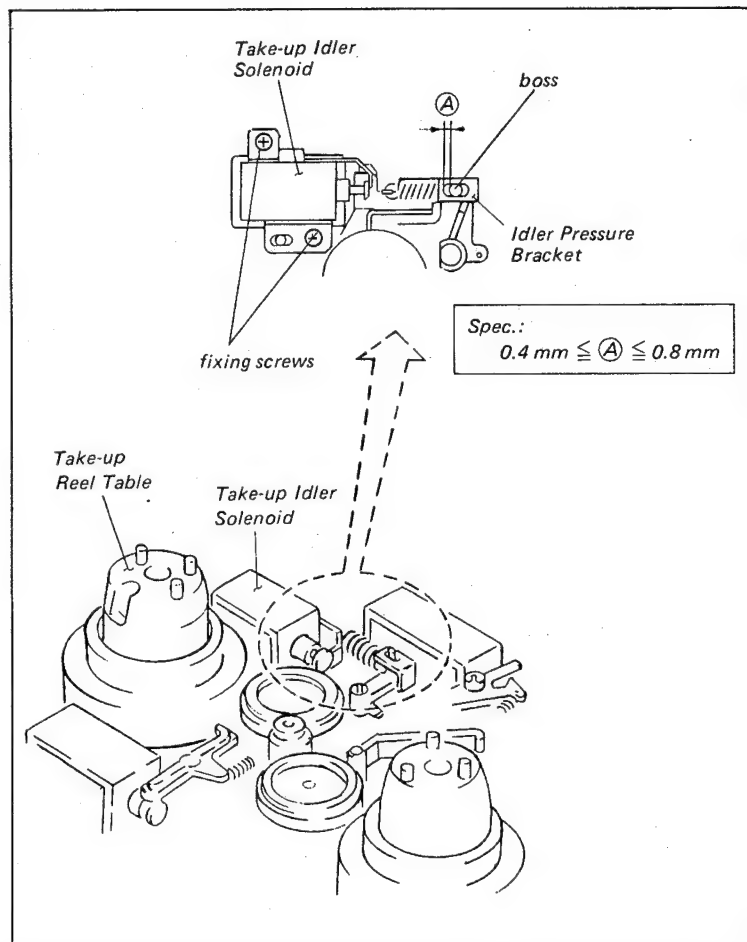
**Tool:** Thickness gauge

**Check procedure:**

- (1) Push the plunger of the T Idler Solenoid in as far as possible by hand. Check that the clearance between the boss and the Idler Pressure Bracket meets the required specification.

**Adjustment procedure:**

- (1) Adjust the position of the Idler Solenoid to meet the required specification.



### 5-3-3. S Idler Pressure Bracket Clearance Adjustment

**Mode:** Unthreading end

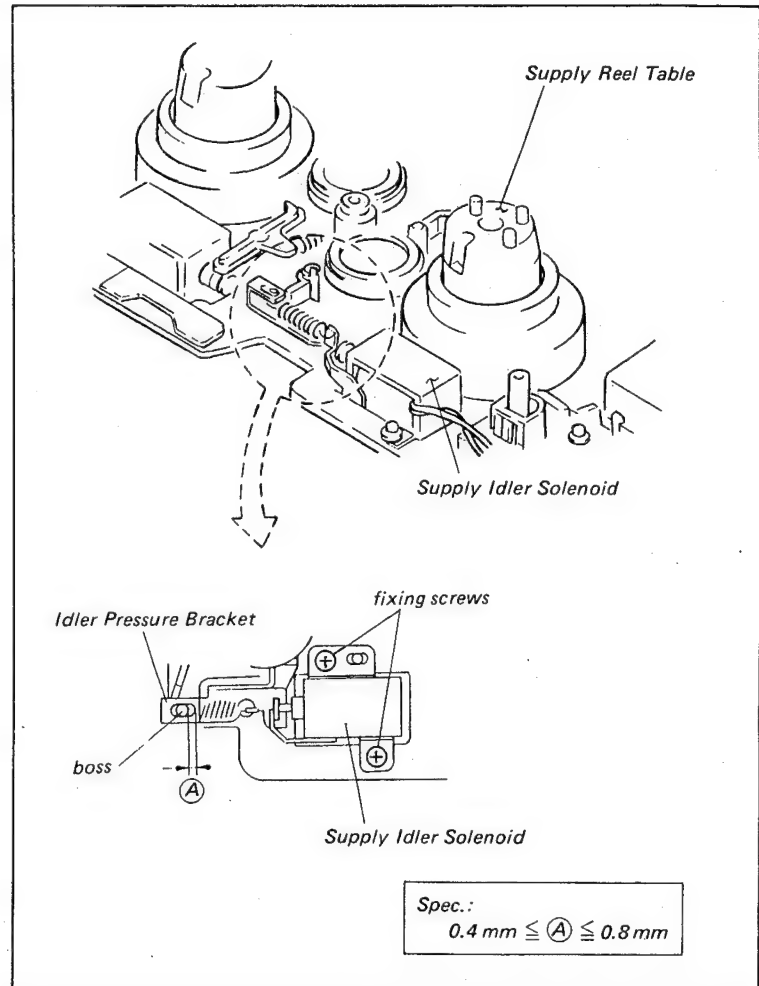
**Tool:** Thickness gauge

**Check procedure:**

- (1) Push the plunger of the S Idler Solenoid in as far as possible by hand. Check that the clearance between the boss and the Idler Pressure Bracket meets the required specification.

**Adjustment procedure:**

- (1) Adjust the position of the Idler Solenoid to meet the required specification.



#### 5-4. TENSION REGULATOR SOLENOID MOUNTING POSITION ADJUSTMENT

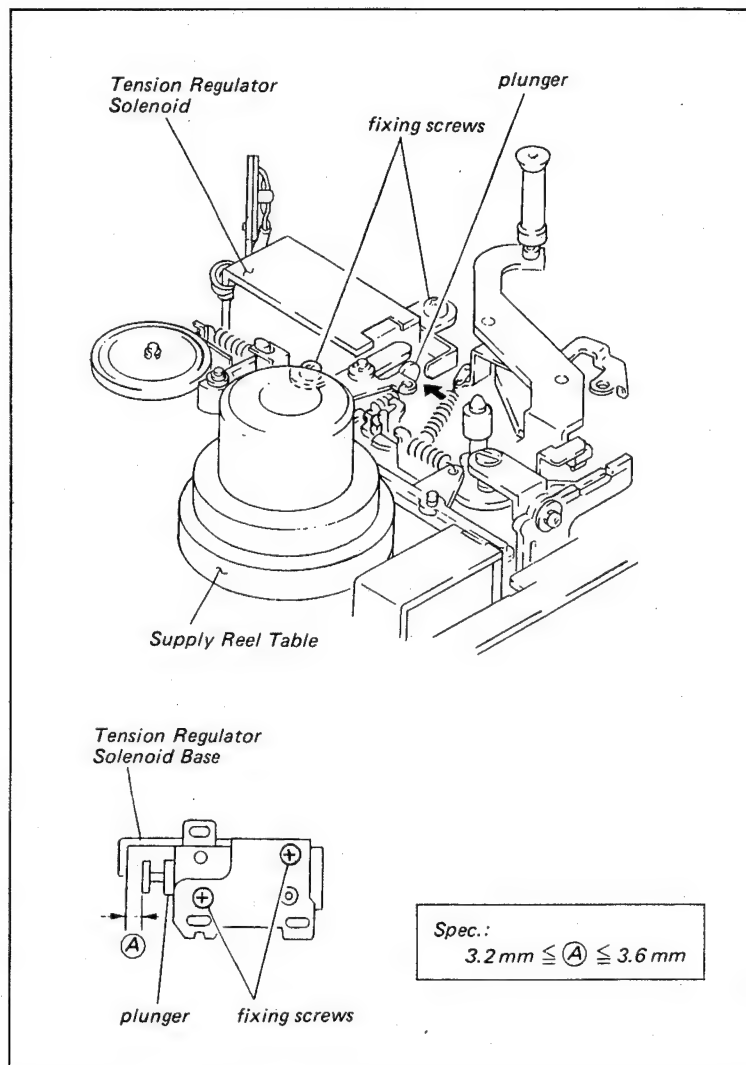
**Mode:** Unthreading end

**Check procedure:**

- (1) Push the plunger of the Tension Regulator Solenoid in as far as possible by hand. Check that the clearance between the end of the plunger and the Tension Regulator Solenoid Base meets the required specification.

**Adjustment procedure:**

- (1) Remove the Tension Regulator Block from the machine.
- (2) Adjust the mounting position of the Tension Regulator Solenoid to meet the required specification.



## 5-5. SWITCH SYSTEM ADJUSTMENT

### 5-5-1. Cassette-in Switch ON Point Adjustment

**Mode:** Unthreading end

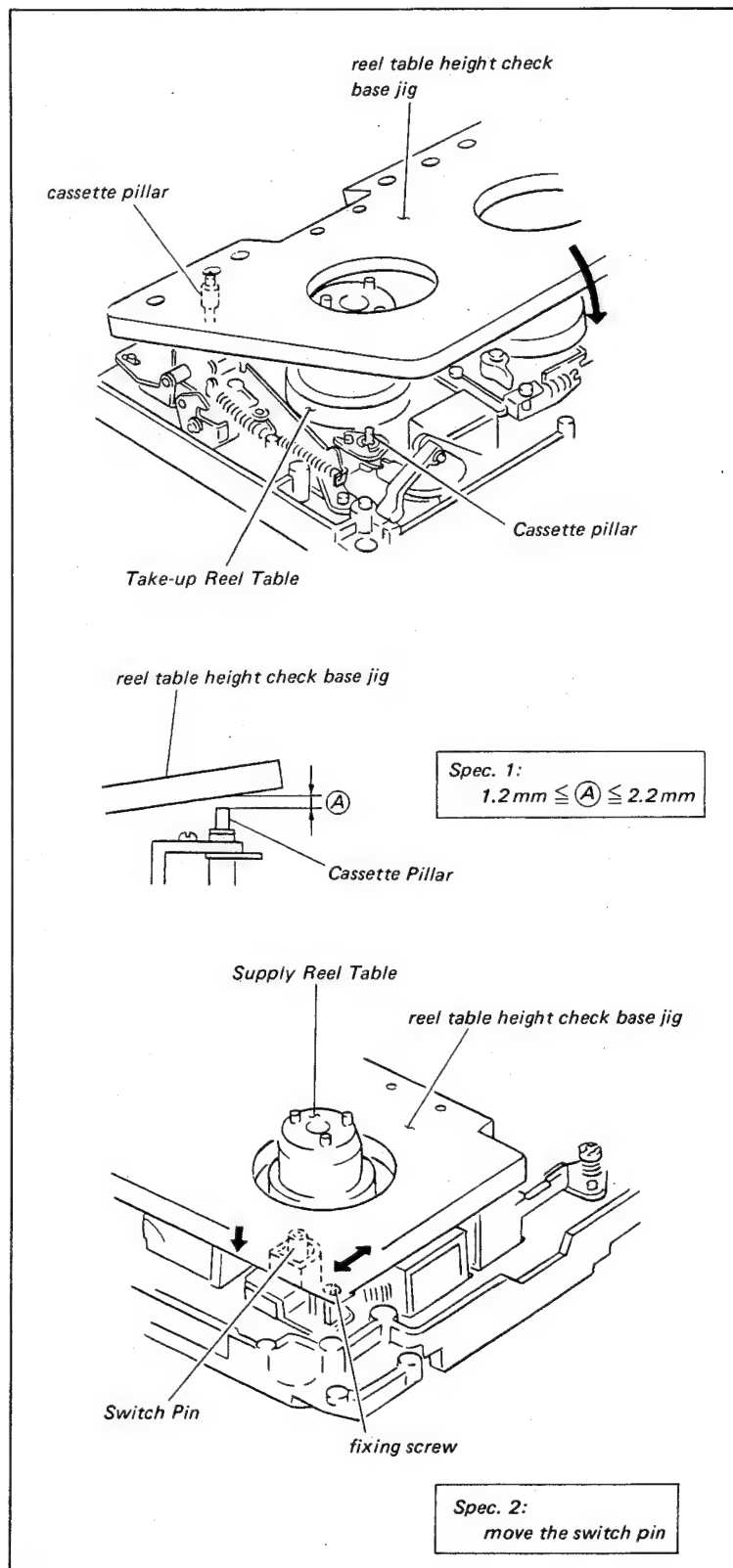
**Tool:** Reel table height check base jig  
Small mirror for adjustment

#### Check procedure:

- (1) Place the reel table height check base jig on the Cassette Pillars of the drum side as shown in the figure.
- (2) Slowly lower the reel table height check base jig in the direction of the arrow.
- (3) When the Cassette-in Switch is turned ON (listen for the click sound), check that the clearance between the Cassette Pillar and the jig meets the required specification (1).
- (4) Place the reel table height check base jig on the Cassette Pillars.
- (5) Press down on the Switch Pin. Check that this switch pin moves. (Spec.(2))

#### Adjustment procedure:

- (1) Move the position of the Cassette-in Switch Block in the direction of the arrow to meet the required specifications (1) and (2).



### 5-5-2. Mis-recording Switch Position Adjustment

**Mode:** Unthreading end

**Tool:** Cassette tape (Never use the alignment tape)

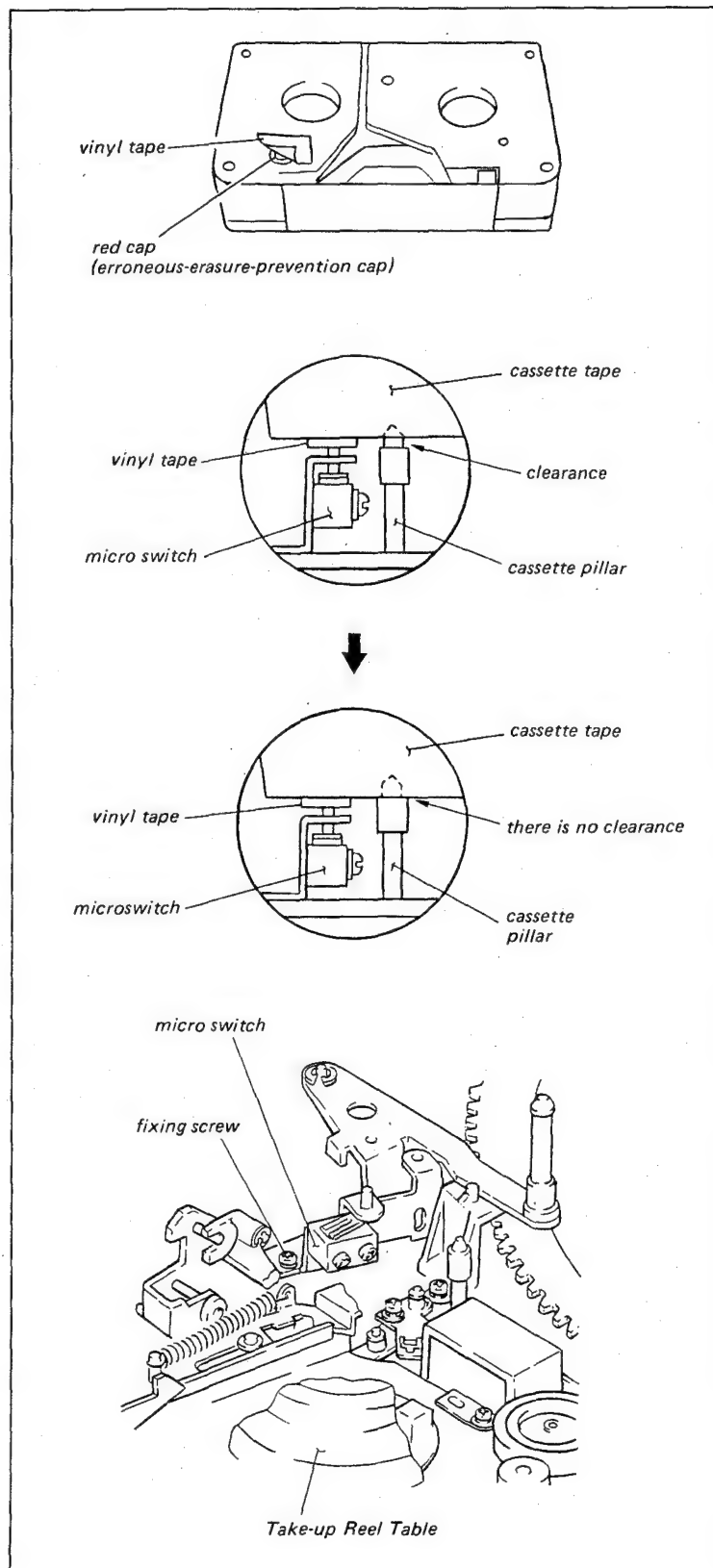
Small mirror for adjustment

**Check procedure:**

- (1) Check that the red cap is installed in the Erroneous-erasure-prevention Hole of the cassette tape. Put the cassette tape in home position.
- (2) Check that the VTR can be put into the Record mode.
- (3) Remove the cassette tape.
- (4) Apply three pieces of vinyl tape on the red cap as shown in the figure.
- (5) Put the cassette tape in home position again.
- (6) Check with mirror that there is no clearance between the Cassette Pillar and the cassette tape.

**Adjustment procedure:**

- (1) Remove the Mis-recording Switch Block from the machine.
- (2) Adjust the position of the microswitch to meet the required specification.
- (3) Install the Mis-recording Switch Block in the machine and check it again.



### 5-5-3. Cassette Lock Switch Position Adjustment

. This adjustment is performed with the Cassette-up Compartment installed in the VTR.

**Mode:** Cassette up

**Tool:** Circuit tester

Oscilloscope

**Preparation:**

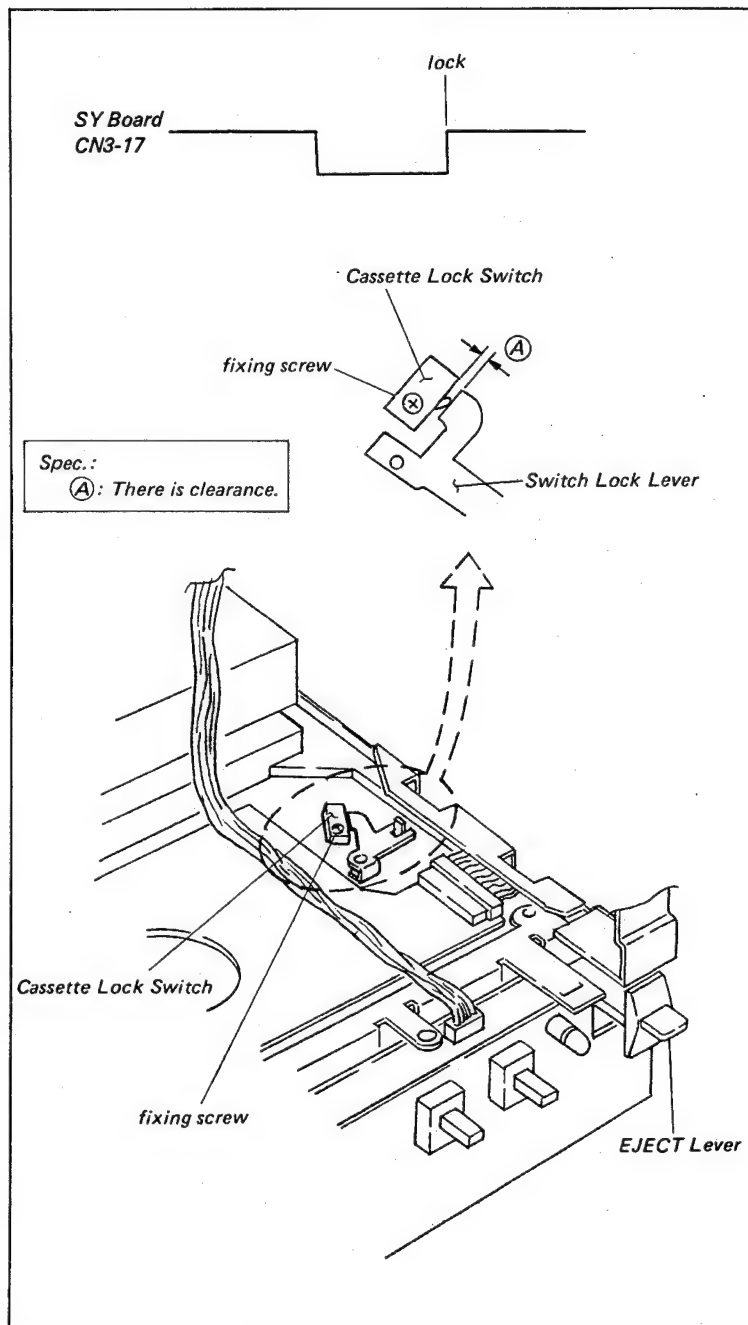
- (1) Connect the oscilloscope to CN3, Pin 17/SY Board.

**Check procedure:**

- (1) Insert the cassette-tape into the Cassette-up Compartment.
- (2) Depress the Cassette-up Compartment slowly.
- (3) Check that the level changes from High to Low before the Cassette-up Compartment locks.
- (4) Depress the Cassette-up Compartment further until it locks.
- (5) Check that the level changes from Low to High soon after the compartment locks.
- (6) Open the VA Ass'y of the back side in the unit.
- (7) Perform the Steps (1) and (2) again.
- (8) Check that there is clearance between the Switch Lock Lever and the micro-switch when the Cassette Lock Switch is in the ON position.

**Adjustment procedure:**

- (1) Adjust the position of the Cassette Lock Switch to meet the required specification.





#### 5-5-4. Reed Switch Clearance Adjustment

. This adjustment is required only when the reed switch of the Tension Regulator is replaced or removed.

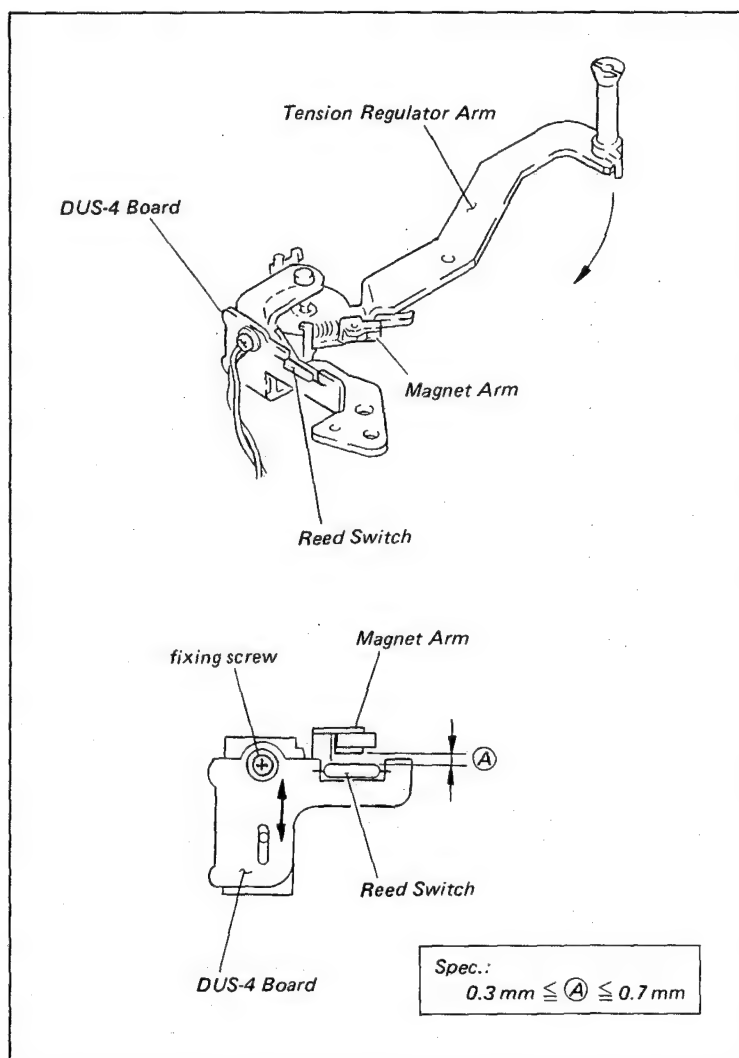
**Tool:** Thickness gauge

##### **Check procedure:**

- (1) Check that the clearance between the magnet and the reed switch of the Magnet Arm Block meets the required specification.

##### **Adjustment procedure:**

- (1) Adjust the position of the DUS-4 Board to meet the required specification.  
(NOTE: Don't press the excessive forth to the reed switch.)



### 5-5-5. Eject Switch ON Point Adjustment

**Mode:** Unthreading end

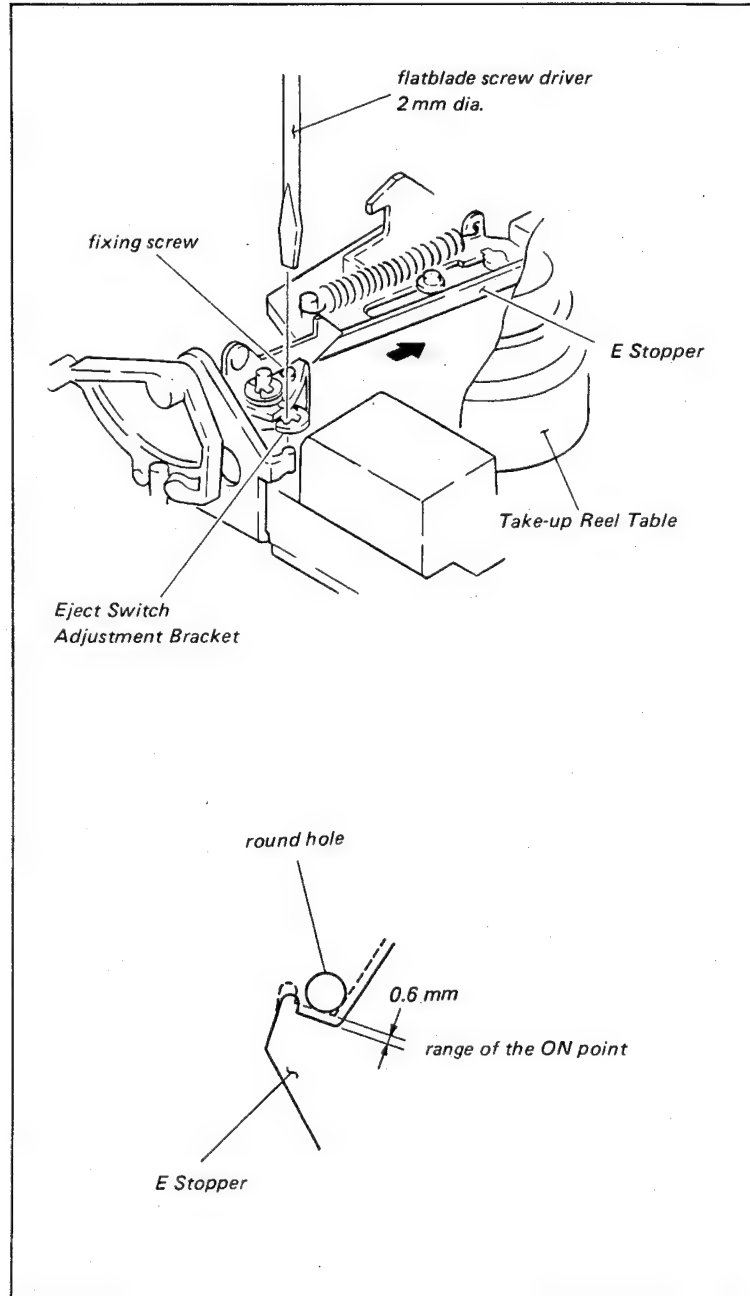
**Check procedure:**

- (1) Press slowly on the EJECT button, and move the E Stopper in the direction of the arrow.
- (2) With the Eject Switch is in the ON position (listen for click sound), check that the positional relationship between the U groove of the E Stopper and the round hole in the chassis meets the required specification.

(Supplement to the specification: the switch must turn ON while the top of the U groove of the E Stopper is between a point 0.5mm ahead of the round hole in chassis and a point 0.5mm behind of the round hole.)

**Adjustment procedure:**

- (1) Loosen the fixing screw of the Eject Switch Adjustment Bracket about 1/2 to 1 turn.
- (2) Insert a flatblade screwdriver (2mm dia.) into the adjusting hole and adjust the position of the Eject Switch Adjustment Bracket so that it meets the required specification.



## 5-6. PC-22 BOARD MOUNTING POSITION ADJUSTMENT

. This adjustment is required when the Photo Interrupter of the PC-22 Board is replaced.

**Mode:** Unthreading end

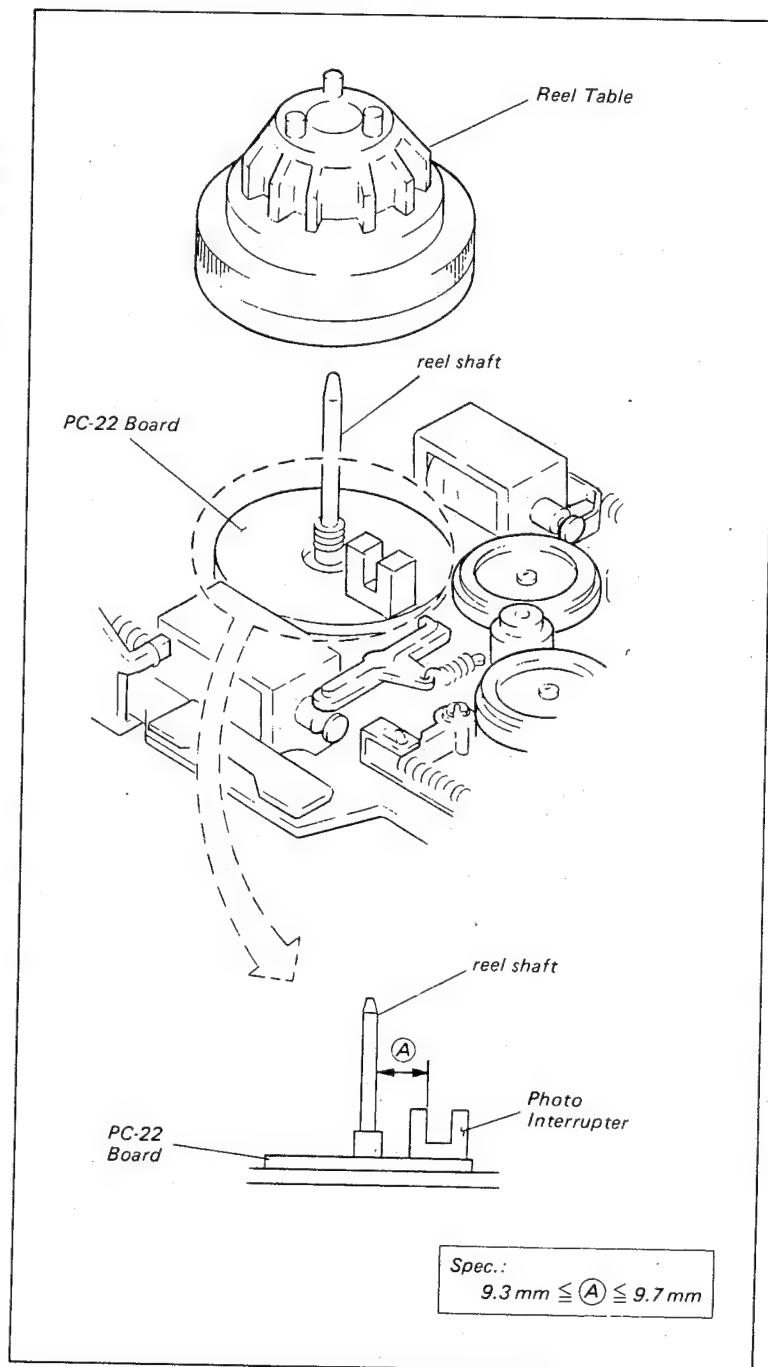
**Tool:** Scale

### Check procedure:

- (1) Check that the distance (shown in the figure) between the outside of the reel shaft and the Photo Interrupter meets the required specification.

### Adjustment procedure:

- (1) Adjust the mounting position of PC-22 Board to meet the required specification.



## 5-7. THREADING SYSTEM ADJUSTMENT

### 5-7-1. Threading Ring Rotation Adjustment

- . This adjustment is required when the Threading Ring or Ring Support is replaced.

#### Mode:

- (1) Turn the Threading Ring until the ring is turned back 180 degrees from the unthreading-end state.

#### Check procedure:

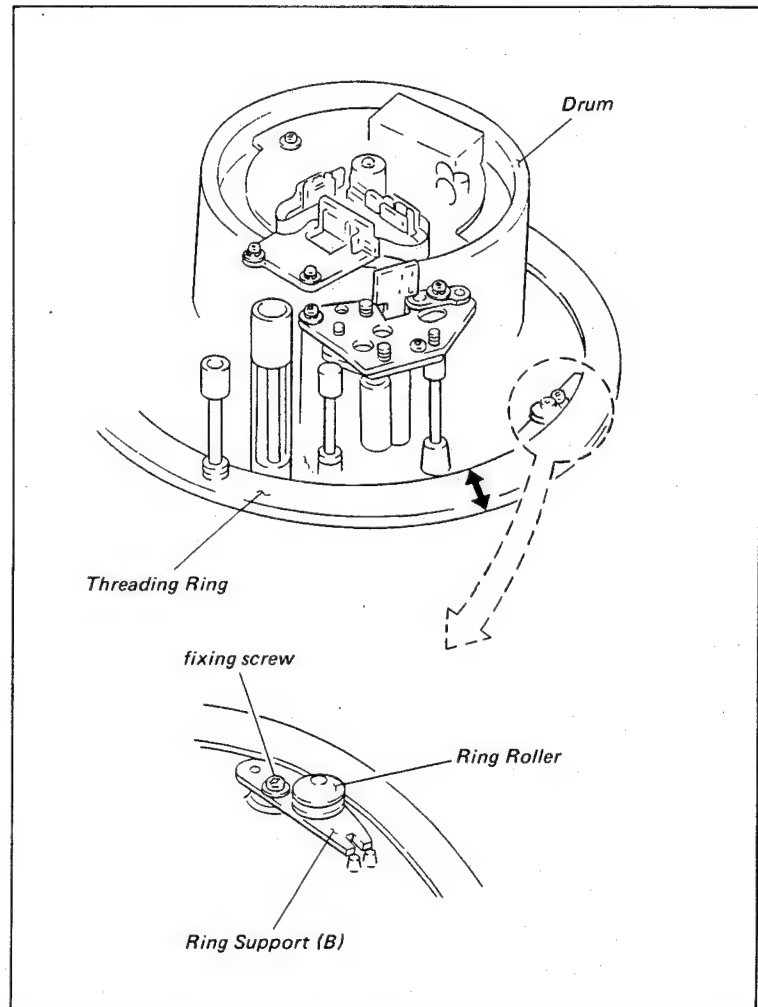
- (1) Check that the horizontal play exists when the Threading Ring is pushed by hand in the direction of the arrow.
- (2) Check that the rotation of the Threading Ring into the threading mode and the unthreading mode is smooth.

#### Adjustment procedure:

- (1) Adjust the position of the Ring Support (B) Assy to meet the required specification.

#### Adjusting procedure;

- . Insert a 0.2mm thick piece of paper between the Threading Ring and the Ring Roller.
- . The paper of this manual is about 0.1mm thick; therefore two sheets would be 0.2 mm thick.



### 5-7-2. Threading Ring Engaging Adjustment

**Mode:** Unthreading end

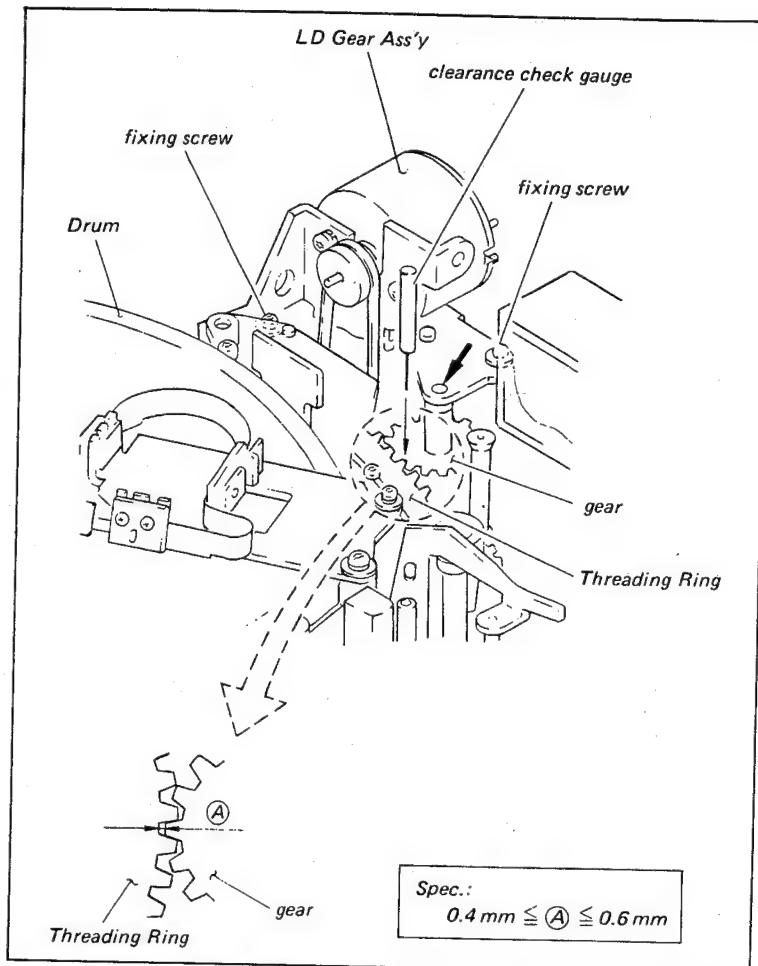
**Tool:** 0.5mm dia. clearance check gauge

**Check procedure:**

- (1) Check that the clearance between the Threading Ring and the gear of the gear box meets the required specification.

**Adjustment procedure:**

- (1) Loosen the fixing screws of the gear box about 1 to 2 turns.
- (2) Insert the 0.5mm dia. clearance check gauge between the Threading Ring and the gear of the gear box.
- (3) Press the gear box lightly toward the Threading Ring.
- (4) Tighten the fixing screws of the gear box, and check that the clearance meets the required specification.



### 5-7-3. Threading/Unthreading Switch Position Adjustment

**Mode:**

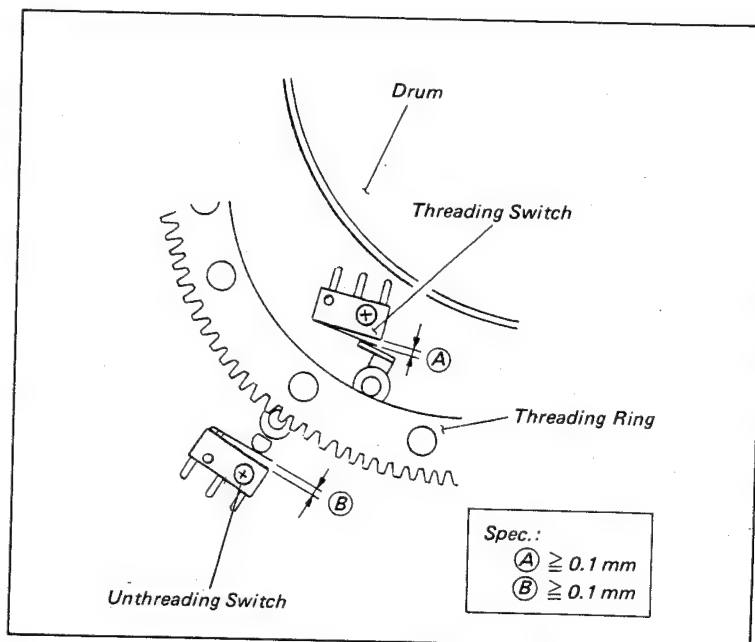
- (1) Turn the LD Pulley of the gear box block from the unthreading-end state until the Unthread End Switch is turned ON.

**Check procedure:**

- (1) Check that the clearances (A) and (B) between the micro switch and the actuators meet the required specifications.

**Adjustment procedure:**

- (1) Adjust the position of each micro switches to meet the required specifications.



#### 5-7-4. Threading Ring Stop Position Adjustment

**Mode:** Threading end

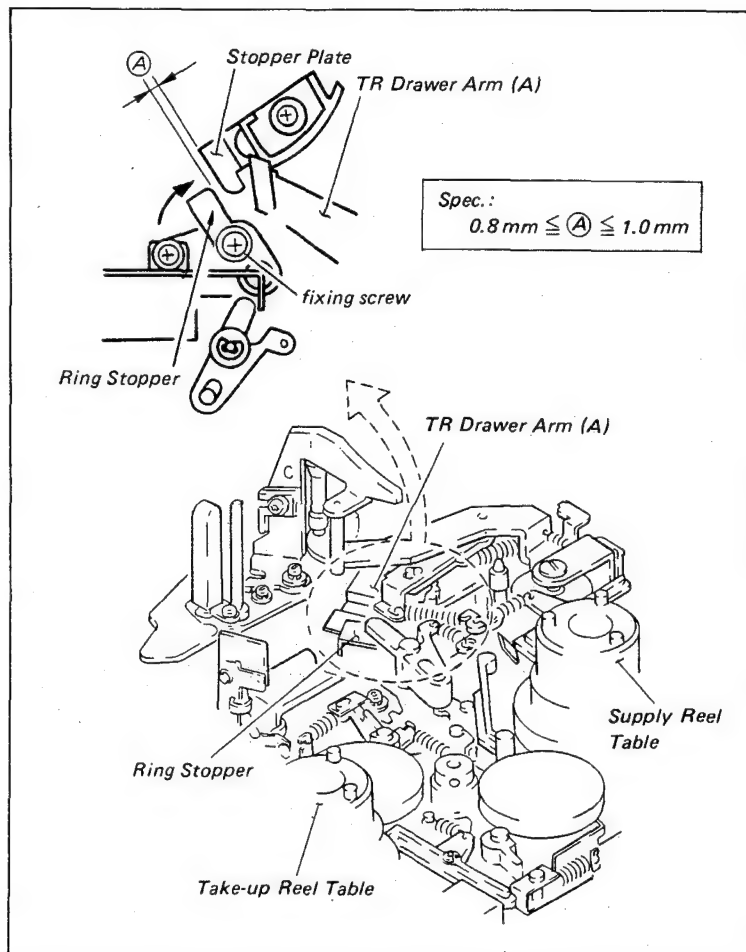
**Tool:** Thickness gauge

**Check procedure:**

- (1) Turn the pulley of the gear box block by hand in the unthreading direction until the belt slips.
- (2) Check that the clearance between the Stopper Plate and the Ring Stopper meets the required specification.

**Adjustment procedure:**

- (1) Loosen the fixing screw of the Ring Stopper about 1 turn.
- (2) Move the Ring Stopper in the direction of the arrow so that it meets the required specification.



### 5-7-5. Tape Stopper Position Adjustment

**Mode:** Unthreading end

**Tool:** Thickness gauge

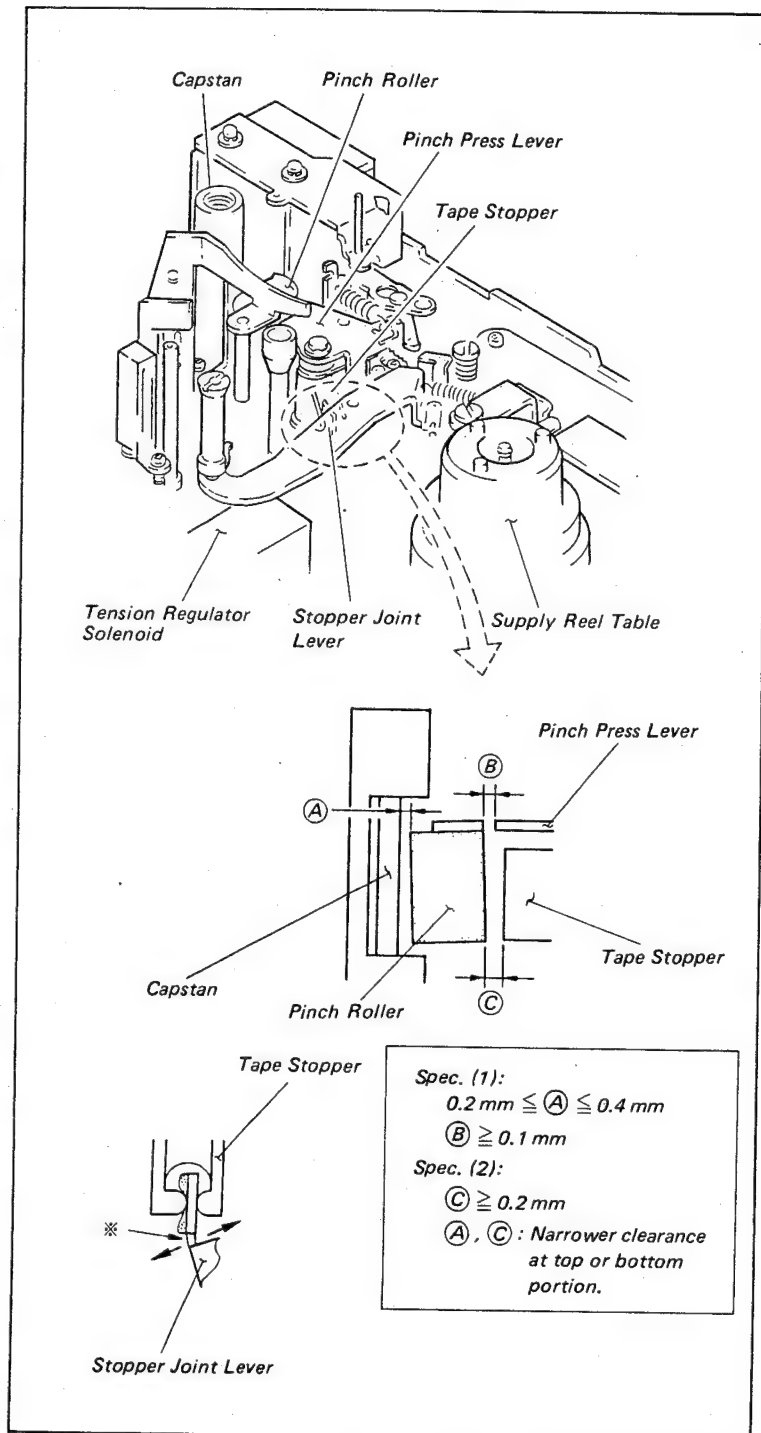
**Check procedure:**

- (1) Push the plunger of the Tension Regulator Solenoid in as far as possible by hand. Check that the clearance (A) between the Capstan and the Pinch Roller, and between the Pinch Roller Flange and the Pinch Press Lever meet the required specification. (Spec 1)
- (2) Push the plunger of the Tension Regulator and Pinch Solenoid to ON state in as far as possible by hand. Check that the clearance (C) between the Pinch Roller and the Tape Stopper. (Spec.2)

**Adjustment procedure:**

- (1) Push the plunger of the Tension Regulator Solenoid in as far as possible by hand.
- (2) Bend the ※ marked portion of the Stopper Joint Lever to meet the required specification.
- (3) Put the Pinch Solenoid into ON state.
- (4) Check Spec (2).

If it does not meet the required specification, repeat Steps (1) and (2) to meet the required specification.



## 5-8. S-TENSION REGULATOR ARM OPERATING POSITION ADJUSTMENT

### 5-8-1. S-tension Regulator Arm Operating Position Adjustment

**Mode:** Playback mode

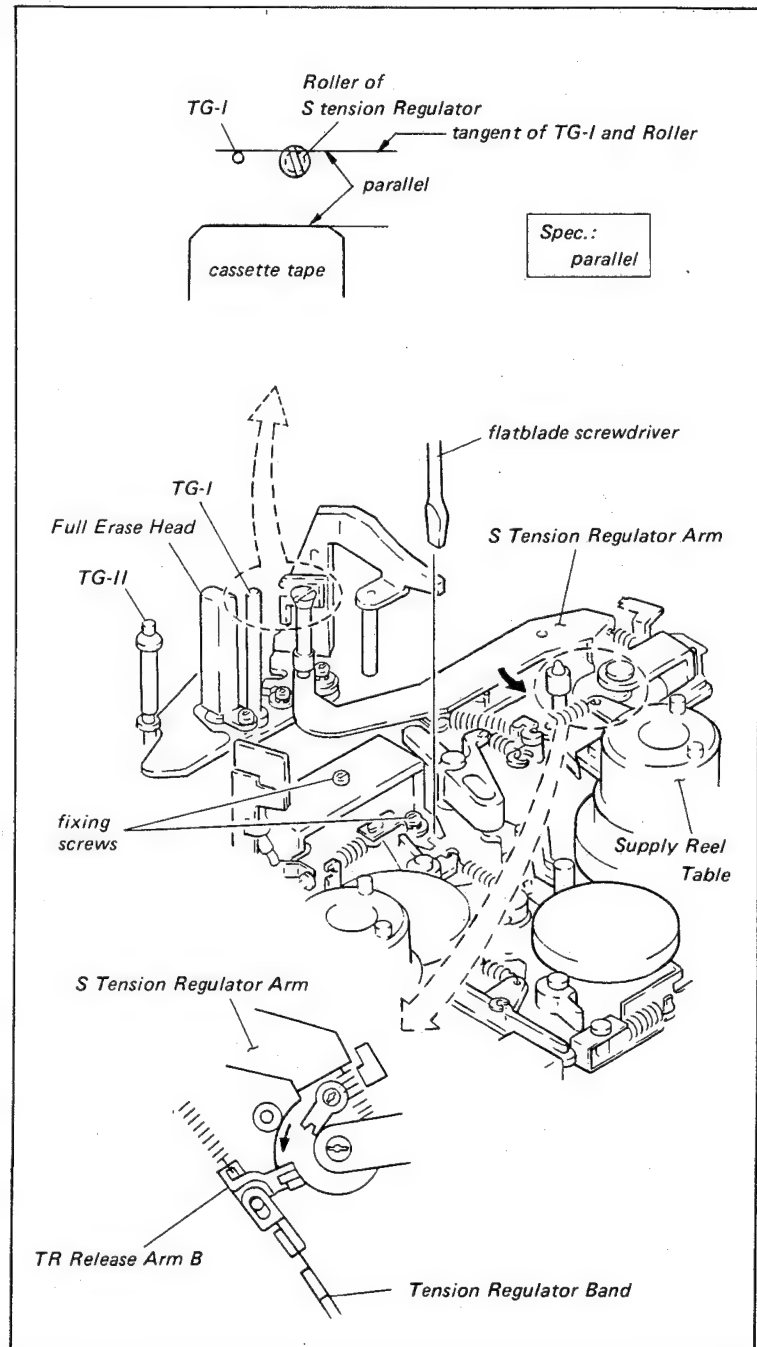
**Tool:** Cassette tape

**Check procedure:**

- (1) Insert the cassette tape, and put the machine into the PLAY mode. Check that the positional relationship between the roller of the S-tension Regulator Arm and TG-I meets the required specification.

**Adjustment procedure:**

- (1) Adjust the position of the Tension Regulator Solenoid to meet the required specification.





## 5-8-2. TR Stopper A Clearance Adjustment

**Mode:** PLAY mode without cassette tape

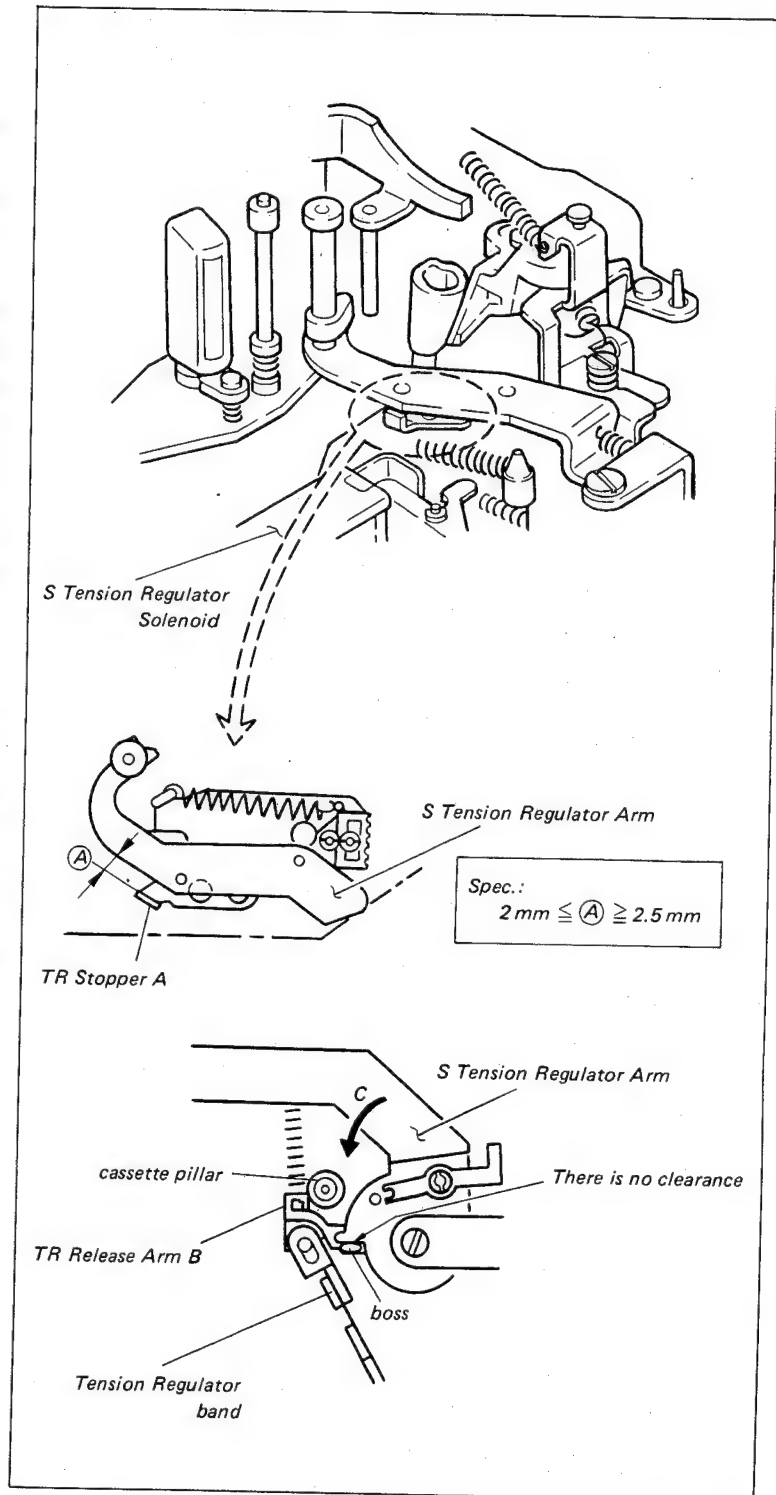
**Tool:** Thickness gauge

### Check procedure:

- (1) Put the machine into the PLAY mode without a cassette tape.
- (2) Check that the iron core of the S Tension Regulator Solenoid is energized completely.
- (3) Move the S Tension Regulator Arm in the direction of the arrow C with figure so that the S Tension Regulator Arm contacts the boss of the TR Release Arm (B).
- (4) Check that the clearance between the S Tension Regulator Arm and the TR Stopper A meets the required specification.

### Adjustment procedure:

- (1) Put the machine into STOP mode.
- (2) Loosen the fixing screw of the TR Stopper A about 1/4 to 1/2 turn.
- (3) Move the TR Stopper A to meet the required specification.
- (4) Put the machine into the PLAY mode without cassette tape, and check that the clearance meets the required specification.



## 5-9. PINCH PRESS MECHANISM BLOCK ADJUSTMENT

### 5-9-1. Pinch Press Mechanism Block Position Adjustment

**Mode:** PLAY mode without a cassette tape

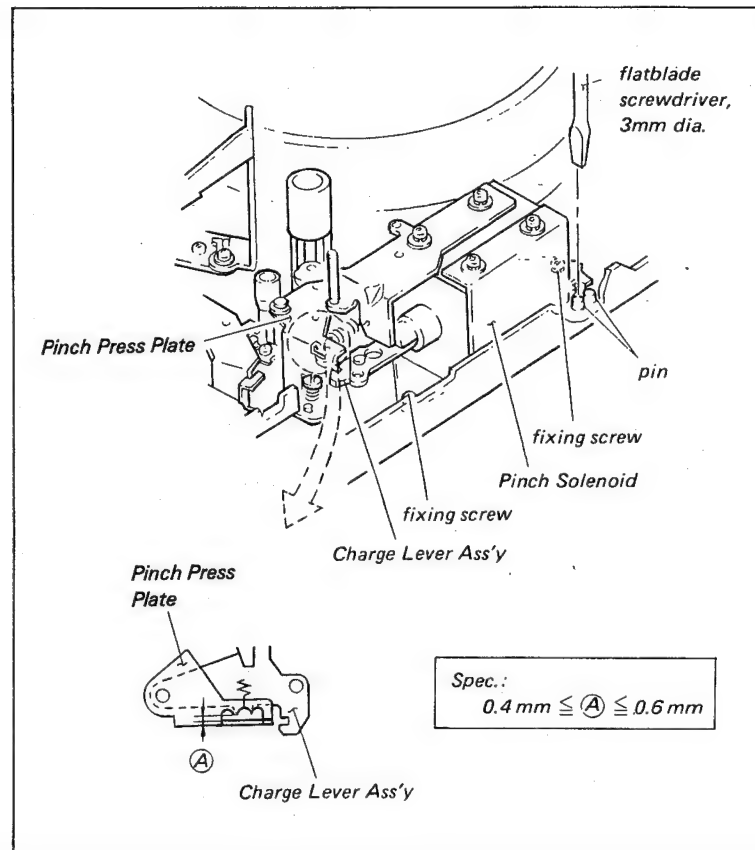
**Tool:** Thickness gauge

**Check procedure:**

- (1) Put the machine into the PLAY mode without a cassette tape.
- (2) Check that the clearance between the Pinch Press Plate and Charge Lever meets the required specification.

**Adjustment procedure:**

- (1) Loosen the fixing screws of the Pinch Press Mechanism Block about 1/2 to 1 turn.
- (2) Insert a flatblade screwdriver (3mm dia.) into the notch of the Pinch Press Mechanism Block, and adjust the Pinch Press Mechanism Block position to meet the required specification.



### 5-9-2. PM Arm Clearance Adjustment

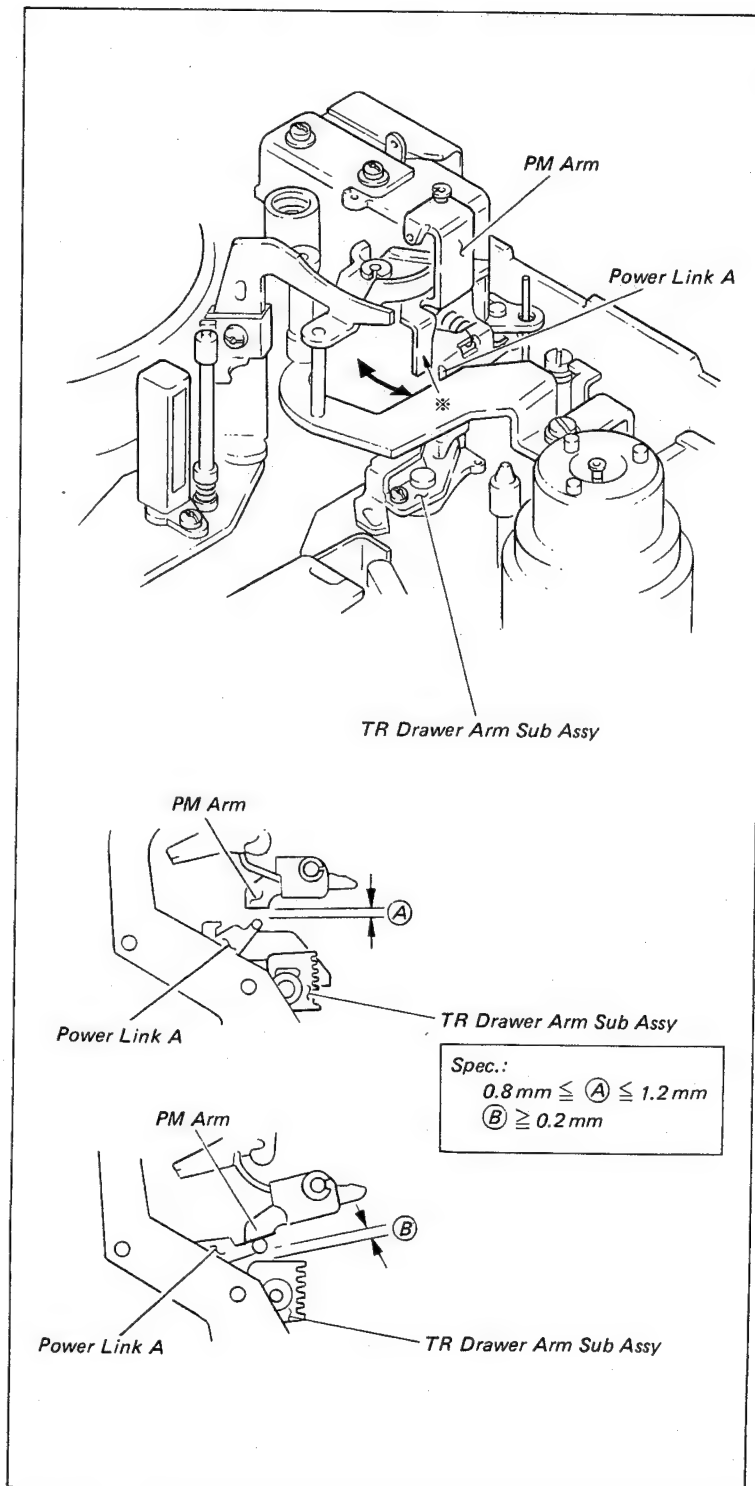
**Mode:** Threading end mode to PLAY mode

**Check procedure:**

- (1) Put the machine into the threading-end mode.
- (2) Check that the Pinch Solenoid is not energized.
- (3) Check that the clearance (A) between the PM Arm and the Power Link A of the TR Drawer Arm Sub Assy meets the required specification.
- (4) Put the machine into the PLAY mode.
- (5) Check that the Pinch Solenoid is energized.
- (6) Check that the clearance (B) between the TR Drawer Arm B and the Power Link A meets the required specification.

**Adjustment procedure:**

- (1) Put the machine into the unthreading-end mode.
- (2) Bend the ※ portion of the PM Arm.
- (3) Check as check procedure, check that the clearances (A) and (B) meet the required specification.



## 5-10. E SLIDER ADJUSTMENT

### 5-10-1. E Slider Position Adjustment

**Mode:** Threading end

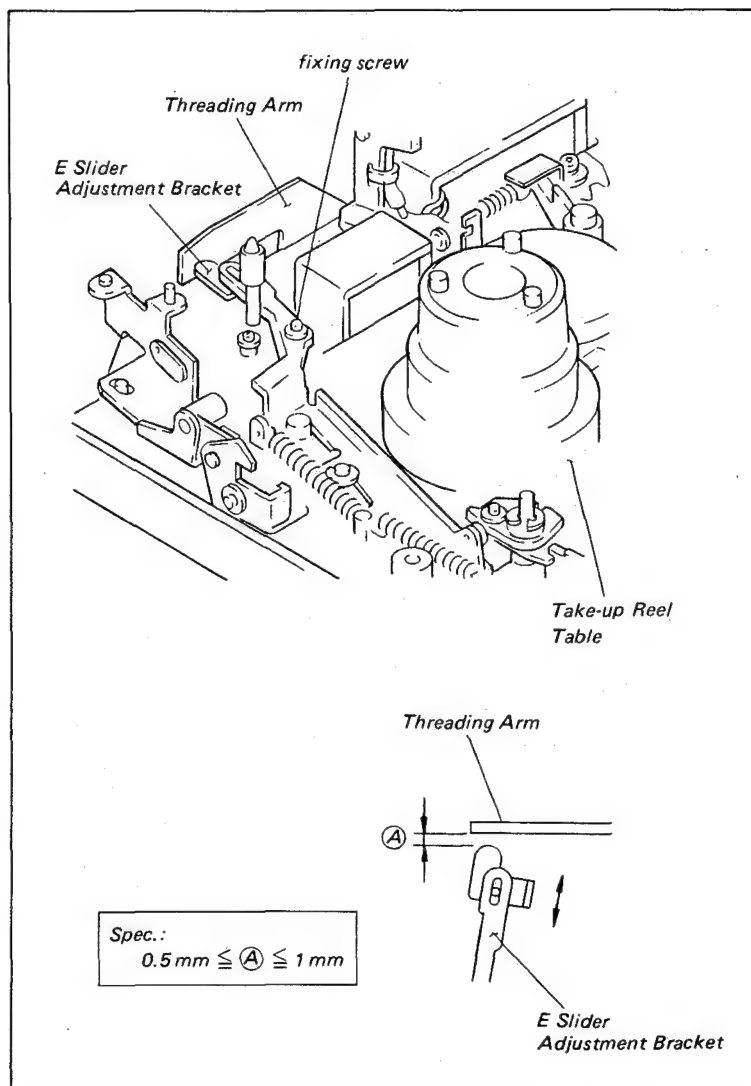
**Tool:** Thickness gauge

**Check procedure:**

- (1) Check that the clearance between the Threading Arm and the E Slider Adjustment Bracket meets the required specification.

**Adjustment procedure:**

- (1) Loosen the fixing screws of the E Slider Adjustment Bracket about 1/2 to 1 turn.
- (2) Adjust the position of the E Slider Adjustment Bracket to meet the required specification.



## 5-10-2. E Slide Stopper Position Adjustment

**Mode:** Unthreading end

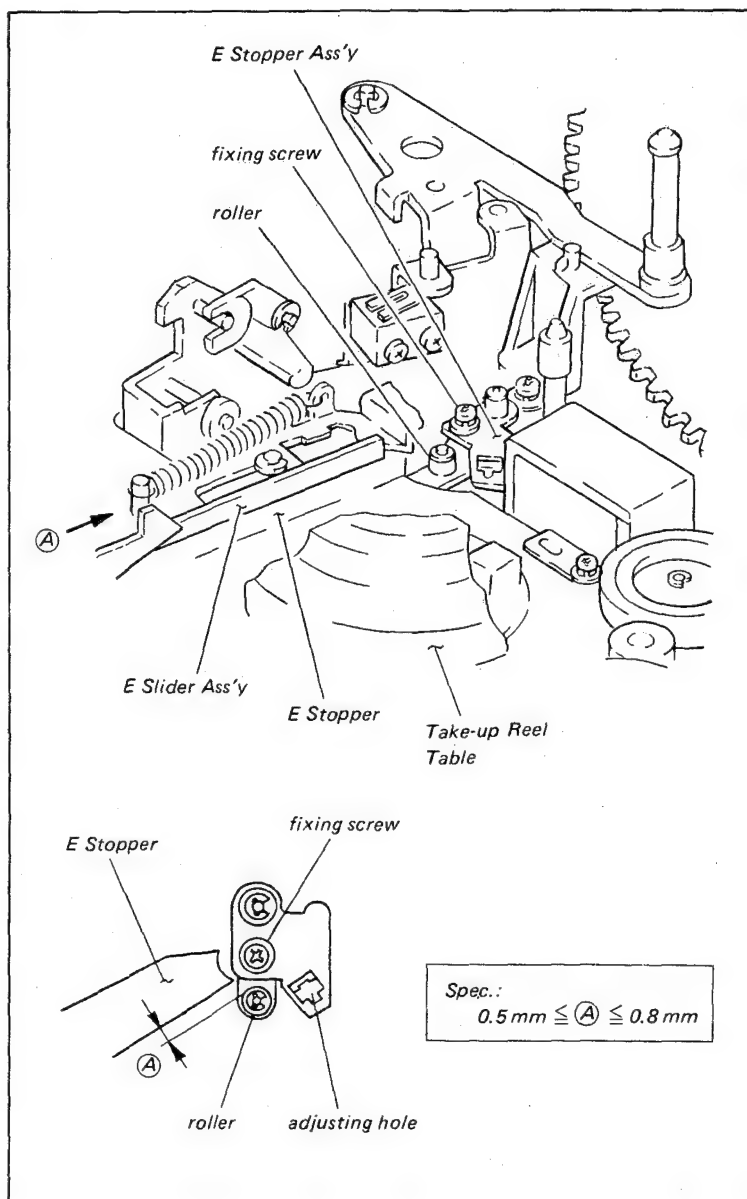
**Tool:** Thickness gauge

### Check procedure:

- (1) Press slowly on the EJECT button, and move the E Slider Assy in the direction of arrow A. Check that the clearance between the roller and the E Stopper meets the required specification.

### Adjustment procedure:

- (1) Loosen the fixing screw of the E Stopper Assy about 1/2 to 1 turn.
- (2) Insert a flatblade screwdriver (2mm dia.) into the adjusting hole and adjust the E Stopper Assy position so that it meets the required specification.
- (3) Turn the pulley of the gear box block by hand. After advancing the Threading Ring about 10mm, tighten the fixing screw.
- (4) After tightening, check again.



## 5-11. BAND HOLDER MOUNTING POSITION ADJUSTMENT

**Mode:** Unthreading end

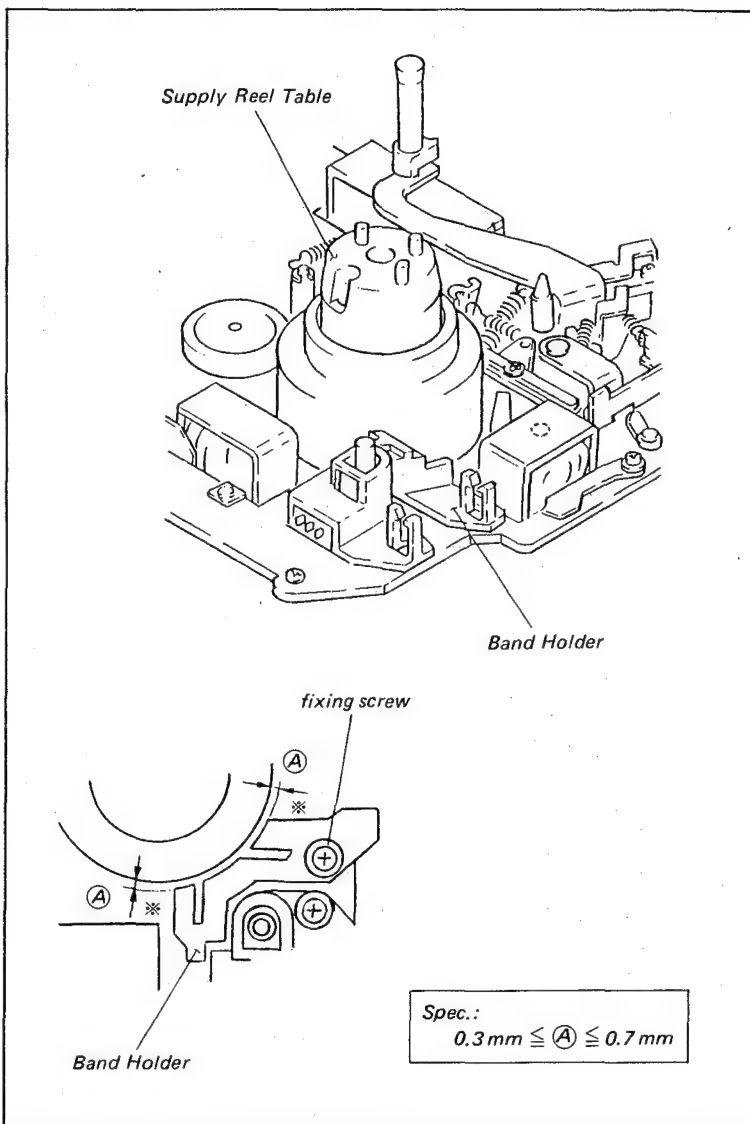
**Tool:** Thickness gauge

**Check procedure:**

- (1) Check that the clearances between the ※ marked portions (two spots) of the Band Holder and the Supply Reel Table meet the required specification.

**Adjustment procedure:**

- (1) Adjust the position of the Band Holder to meet the required specification.



## 5-12. DAMPER POSITION ADJUSTMENT OF CASSETTE-UP COMPARTMENT

. This adjustment is performed with Cassette-up Compartment removed from the unit.

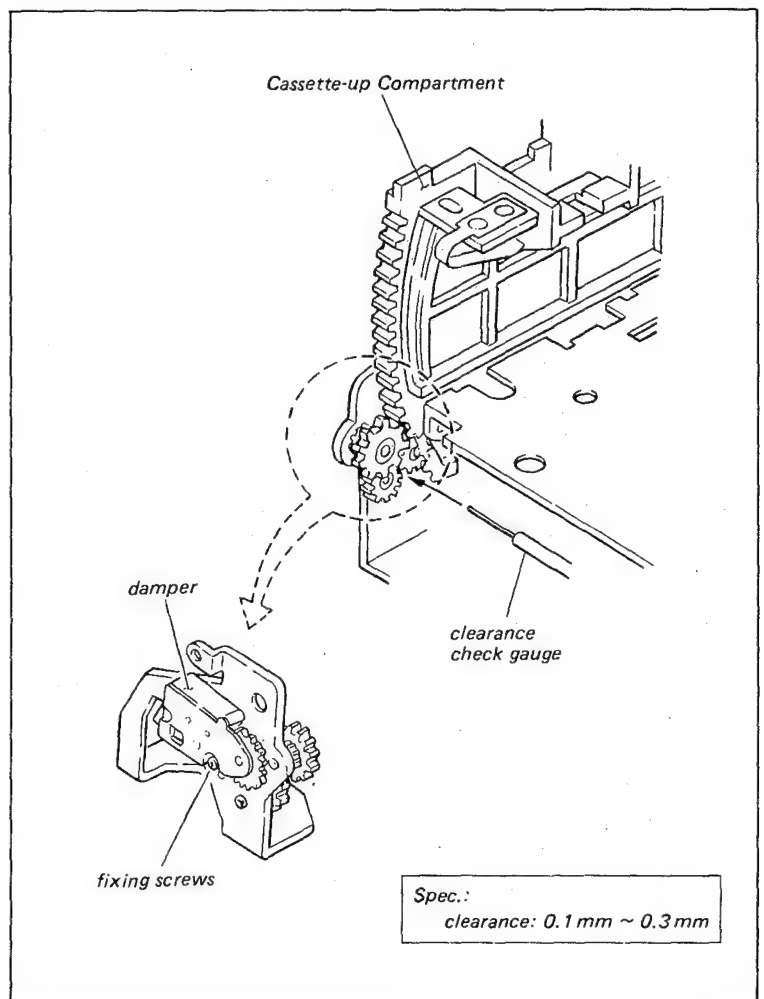
**Tool:** Clearance check gauge

### Check procedure:

- (1) Check that the clearance between the gear of the Cassette-up Compartment and the gear of the Damper Block meets the required specification.

### Adjustment procedure:

- (1) Adjust the position of the Damper Block to meet the required specification.



### 5-13. CASSETTE LID OPENER BRACKET POSITION ADJUSTMENT

**Mode:** Unthreading end

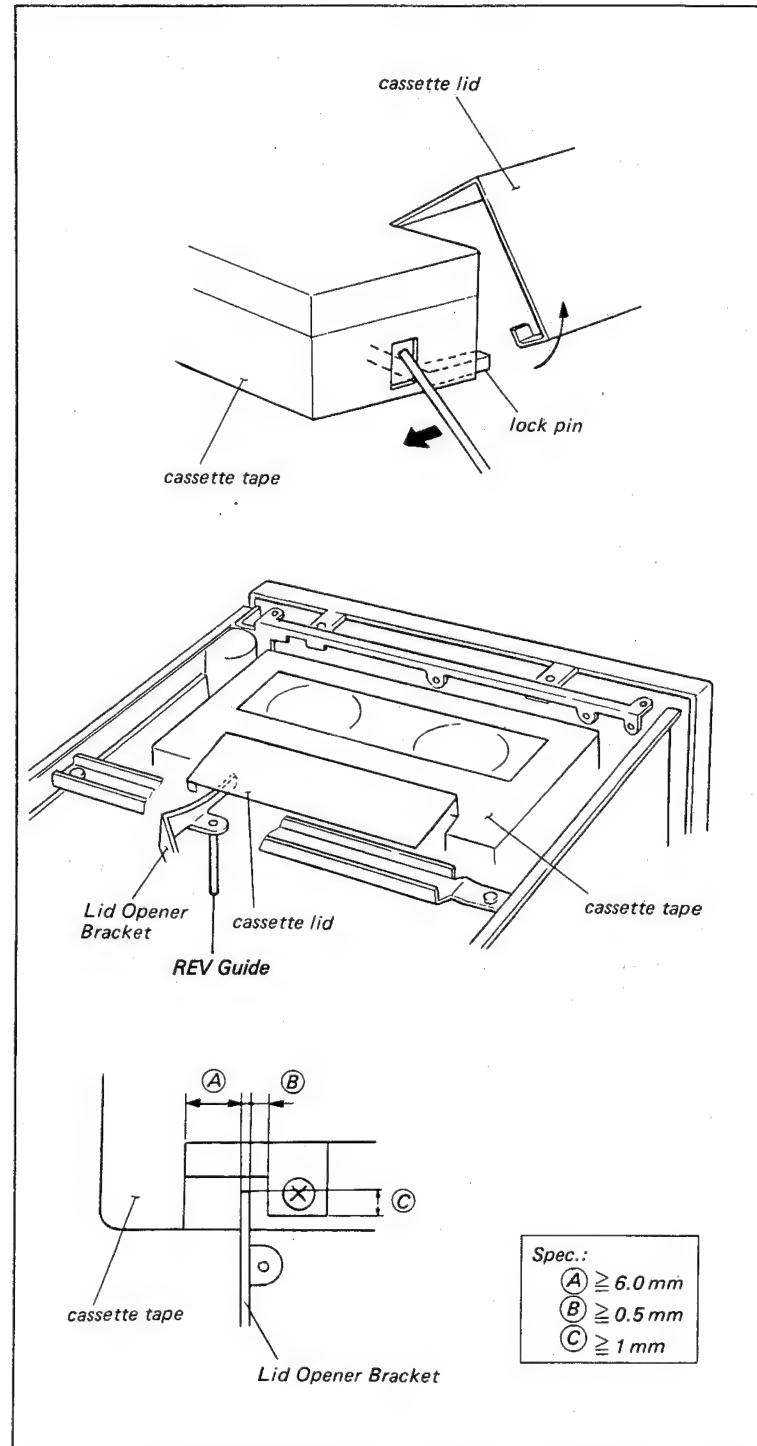
**Tool:** Cassette tape

**Check procedure:**

- (1) Release the lock of the cassette lid, and open the lid.
- (2) Insert the cassette tape in the Cassette-up Compartment and lower the Compartment.
- (3) Check that the positional relationship between the Lid Opener Bracket and the groove of the cassette tape meets the required specification.

**Adjustment procedure:**

- (1) Adjust the mounting position of the Lid Opener Bracket to meet the required specification.
- (2) If they do not meet the required specification in Step (1), bend the Lid Opener Bracket. After this adjustment, the REV Guide Slantness Adjustment must be performed in Section 7-2.





## SECTION 6

### TORQUE AND BACK TENSION ALIGNMENT

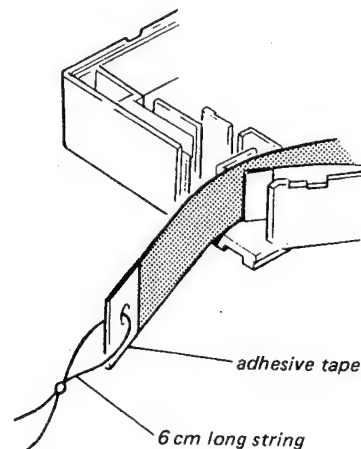
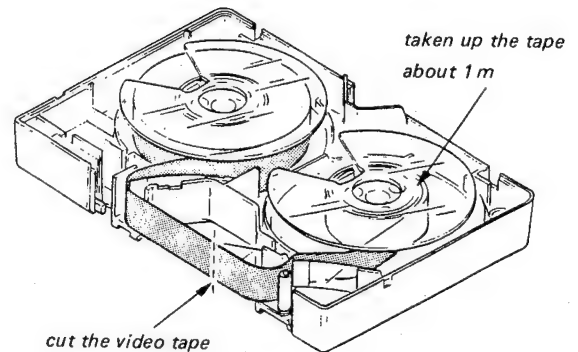
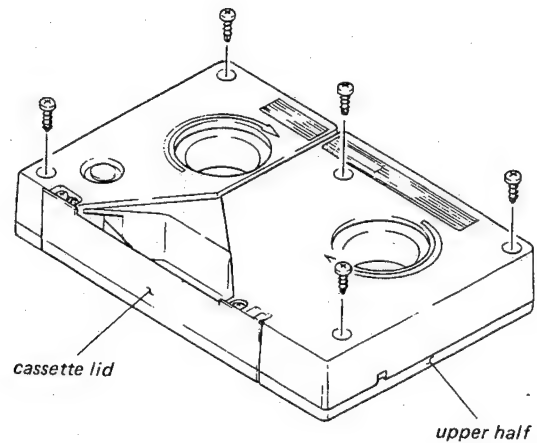
#### ALIGNMENT INFORMATION

- Local specially-made Cassette Tape for the PLAY Back Tension Adjustment.

This cassette tape is used for the PLAY Back Tension Adjustment.

Prepare this tape as follows:

- (1) Wind the KSP-S-20 cassette tape to the tape beginning portion.
- (2) Remove the five screws on back of the cassette tape, and remove the Upper Half of the cassette.
- (3) Taken up the video tape on the take-up reel about 1 meter. Cut the video tape at the position as shown in the figure. Remove the take-up reel from the cassette.
- (4) Attach an adhesive tape on an end of the hole on the adhesive tape.
- (5) Make a loop of 6cm long string through the hole.



## 6-1. SOFT BRAKE SYSTEM ADJUSTMENT

### 6-1-1. Take-up Soft Brake Torque Adjustment

**Mode:** Unthreading end

**Tool:** Reel table torque measurement jig  
(40mm dia.)

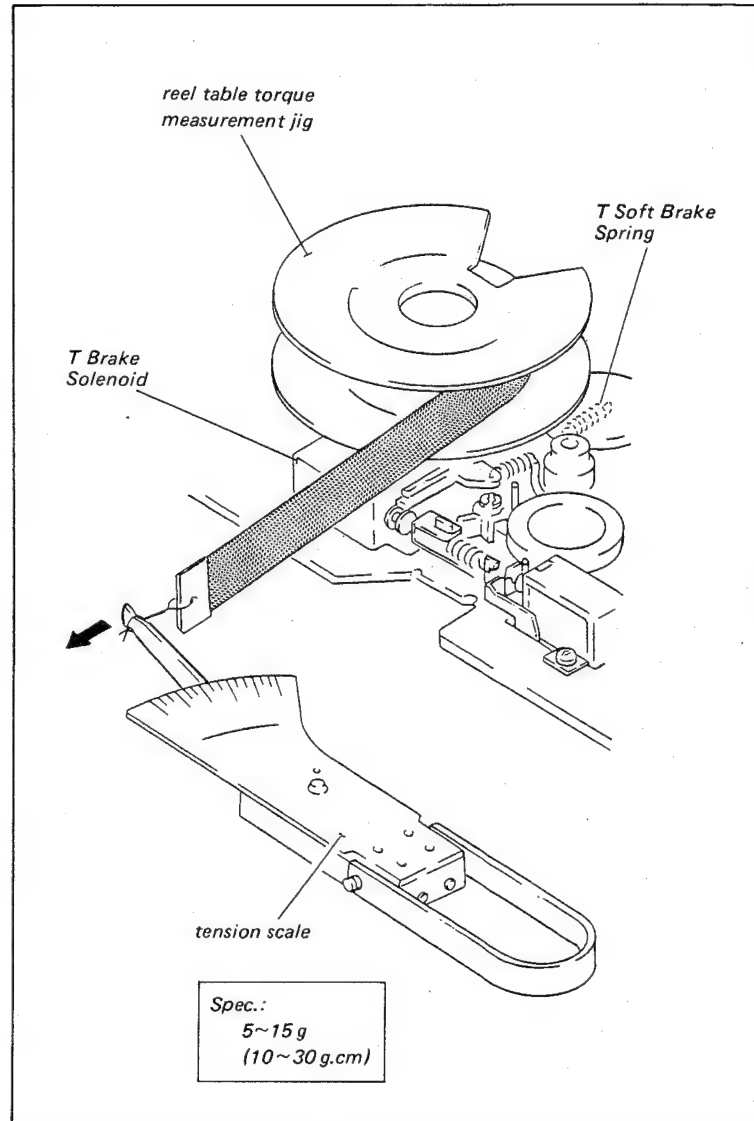
Tension scale (50g full scale)

**Check procedure:**

- (1) Wind the tape in the clockwise direction on the reel table torque measurement jig.
- (2) Install the measurement jig on the Take-up Reel Table, and hook a tension scale on the end of the tape.
- (3) Push the plunger of the T Brake Solenoid in as far as possible by hand.  
(Hold it in place, the fully engaged position.)
- (4) In the fully engaged position, pull the tension scale at a constant speed of approx. 10cm/sec. in the direction of the arrow, as shown in the figure. Check that the scale reading meets the required specification.

**Adjustment procedure:**

- (1) Replace the T Soft Brake, or adjust it by straightening or cutting off the spring of the Soft Brake.



## 6-1-2. S Soft Brake Torque Adjustment

**Mode:** Unthreading end

**Tool:** Reel table torque measurement jig  
(40mm dia.)

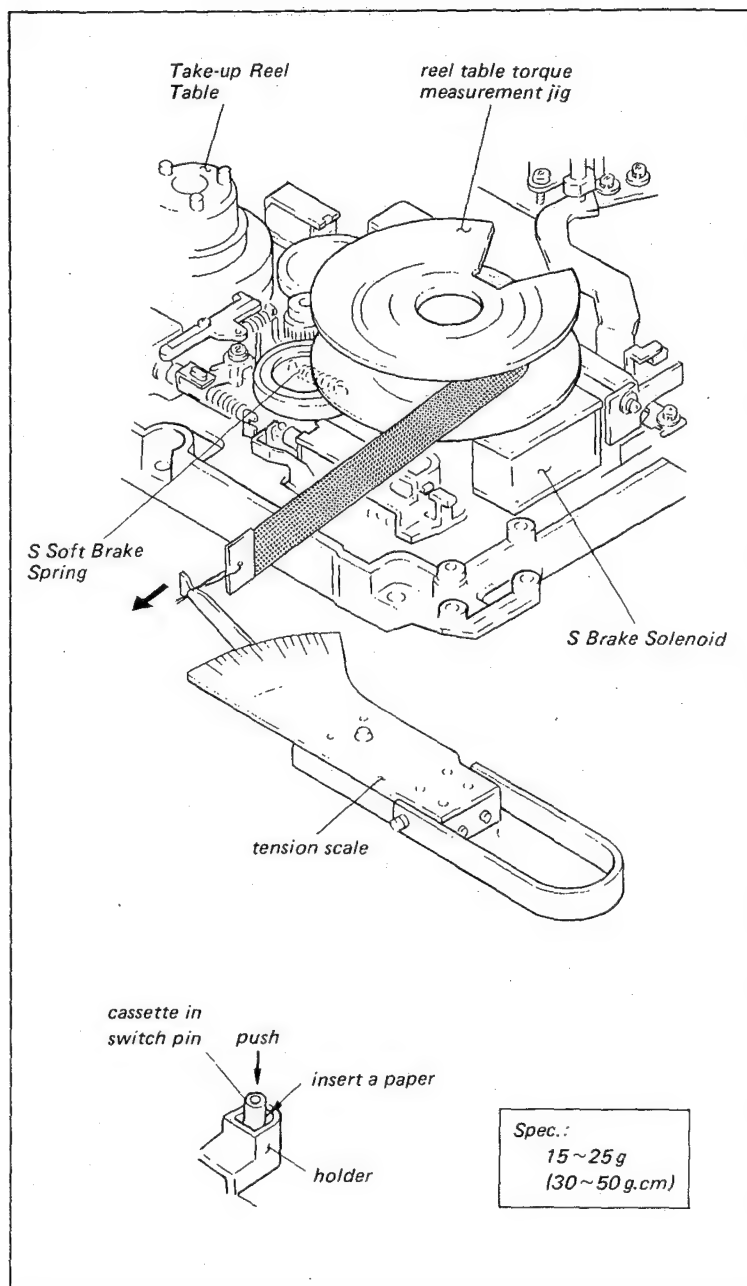
Tension scale (50g full scale)

### Check procedure:

- (1) Push down the Cassette-in Switch Pin, and insert the paper between the Pin and the Holder so that the Pin does not rise up.
- (2) Wind the tape in the clockwise direction on the reel table torque measurement jig.
- (3) Install the measurement jig on the Supply Reel Table, and hook a tension scale on the end of the tape. Check that the Reel Hub does not contact with the paper that is inserted into Step (1).
- (4) Push the plunger of the S Brake Solenoid in as far as possible by hand. (Hold it in place, the fully engaged position.)
- (5) In the fully engaged position, pull the tension scale at a constant speed of approx. 10cm/sec. in the direction of the arrow, as shown in the figure. Check that the scale reading meets the required specification.

### Adjustment procedure:

- (1) Replace the S Soft Brake, or adjust it by straightening or cutting off the spring of the Soft Brake.



## 6-2. MAIN BRAKE SYSTEM ADJUSTMENT

### 6-2-1. Take-up Main Brake Torque Adjustment

**Mode:** Unthreading end

**Tool:** Reel table torque measurement jig  
(40mm dia.)

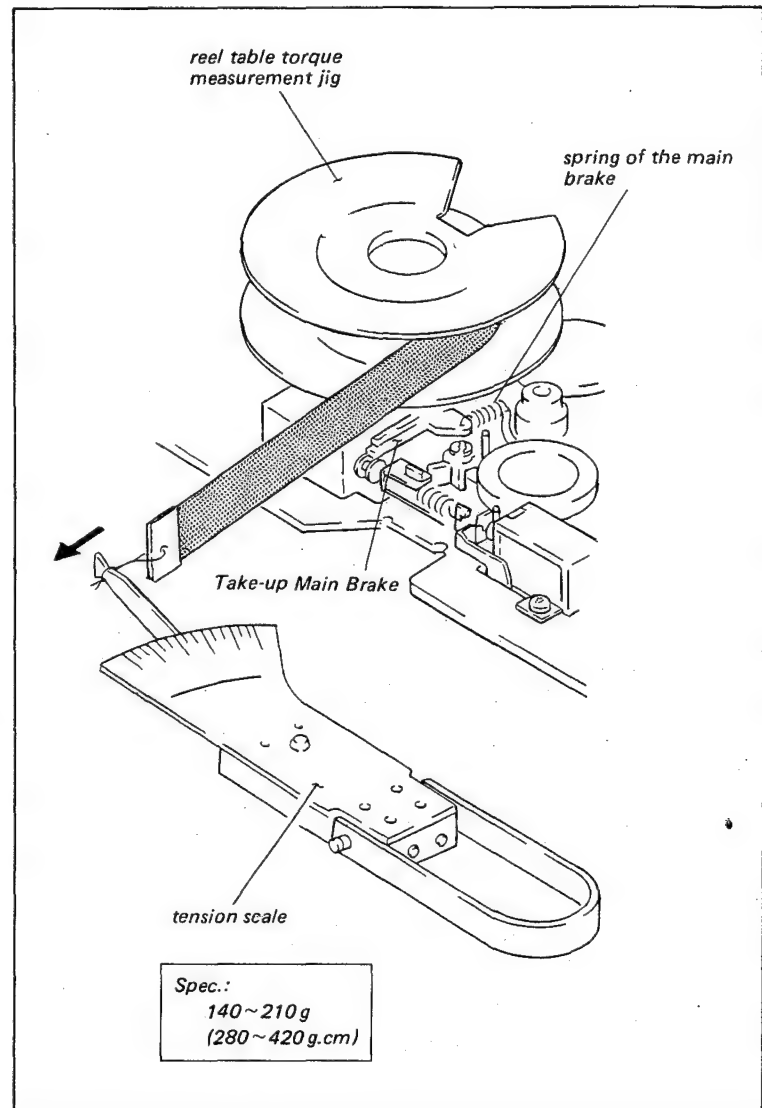
Tension scale (500g full scale)

**Check procedure:**

- (1) Wind the tape in the clockwise direction on the reel table torque measurement jig.
- (2) Install the measurement jig on the Take-up Reel Table, and hook a tension scale on the end of the tape.
- (3) Pull the tape at a constant speed of approx. 10cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification.

**Adjustment procedure:**

- (1) Replace the Take-up Main Brake, or adjust it by straightening or cutting off the spring of the Main Brake.



## 6-2-2. Supply Main Brake Torque Adjustment

**Mode:** Unthreading end

**Tool:** Reel table torque measurement jig  
(40mm dia.)

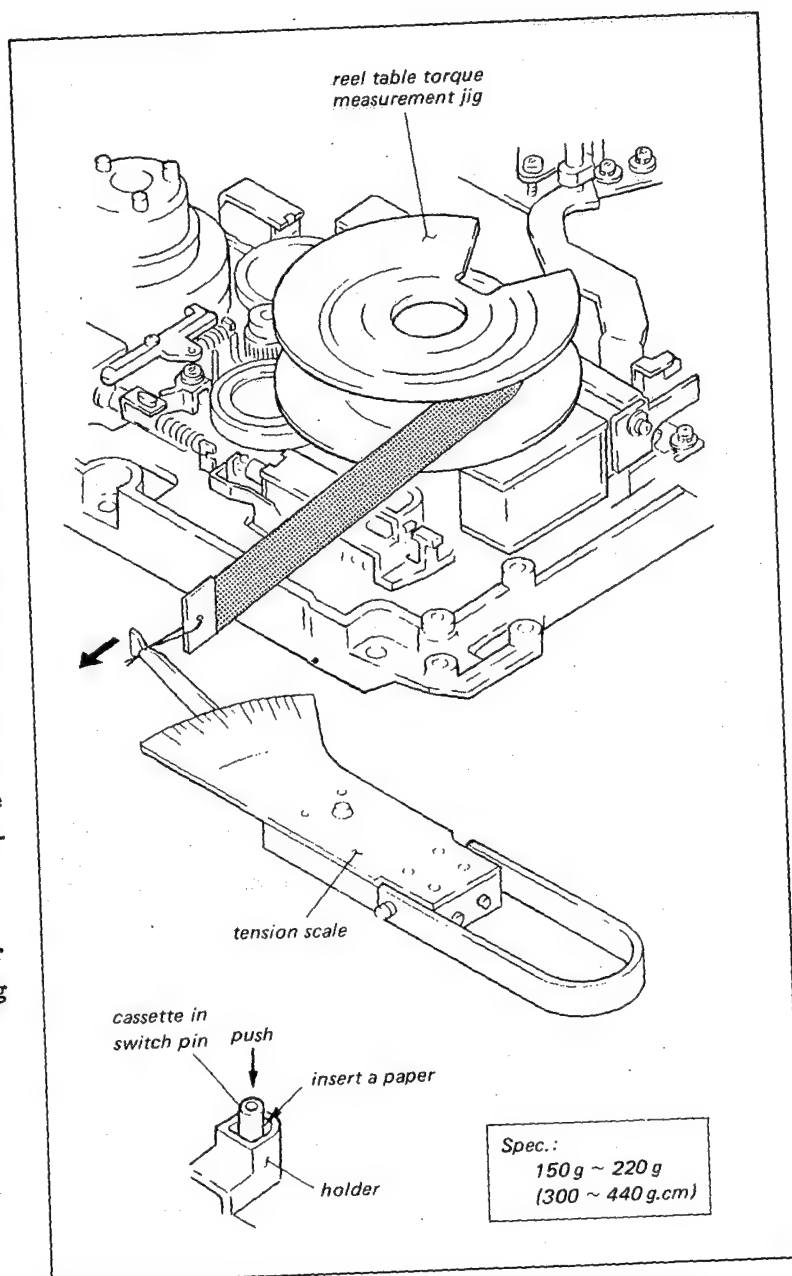
Tension scale (500g full scale)

### Check procedure:

- (1) Push down the Cassette-in Switch Pin, and insert the paper between the Pin and the Holder so that the Pin does not rise up.
- (2) Wind the tape on the reel table torque measurement jig in the clockwise direction.
- (3) Install the measurement jig on the Supply Reel Table, and hook a tension scale on the end of the tape. Check that the Reel Hub does not contact with the paper that is inserted into Step (1).
- (4) Pull the tape at a constant speed of approx. 10cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification.

### Adjustment procedure:

- (1) Replace the Supply Main Brake, or adjust it by straightening or cutting off the spring of the main brake.



## 6-2-2. Supply Main Brake Torque Adjustment

**Mode:** Unthreading end

**Tool:** Reel table torque measurement jig  
(40mm dia.)

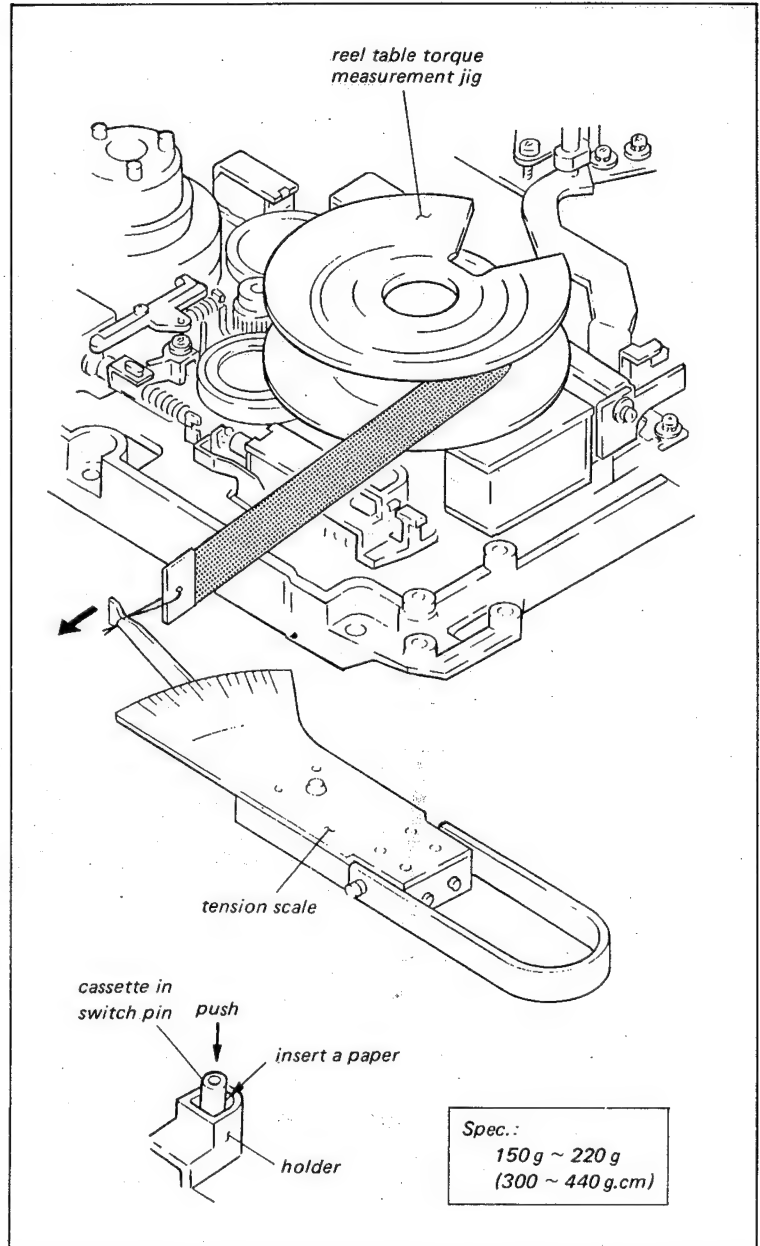
Tension scale (500g full scale)

### Check procedure:

- (1) Push down the Cassette-in Switch Pin, and insert the paper between the Pin and the Holder so that the Pin does not rise up.
- (2) Wind the tape on the reel table torque measurement jig in the clockwise direction.
- (3) Install the measurement jig on the Supply Reel Table, and hook a tension scale on the end of the tape. Check that the Reel Hub does not contact with the paper that is inserted into Step (1).
- (4) Pull the tape at a constant speed of approx. 10cm/sec. in the direction of the arrow. Check that the scale reading meets the required specification.

### Adjustment procedure:

- (1) Replace the Supply Main Brake, or adjust it by straightening or cutting off the spring of the main brake.



### 6-3. PLAY BACK TENSION ADJUSTMENT

**Mode:** Threading end

**Tool:** Local specially-made cassette tape for the PLAY Back Tension Adjustment. (Refer to the alignment information.)

Tension scale (100g full scale)

**Preparation:**

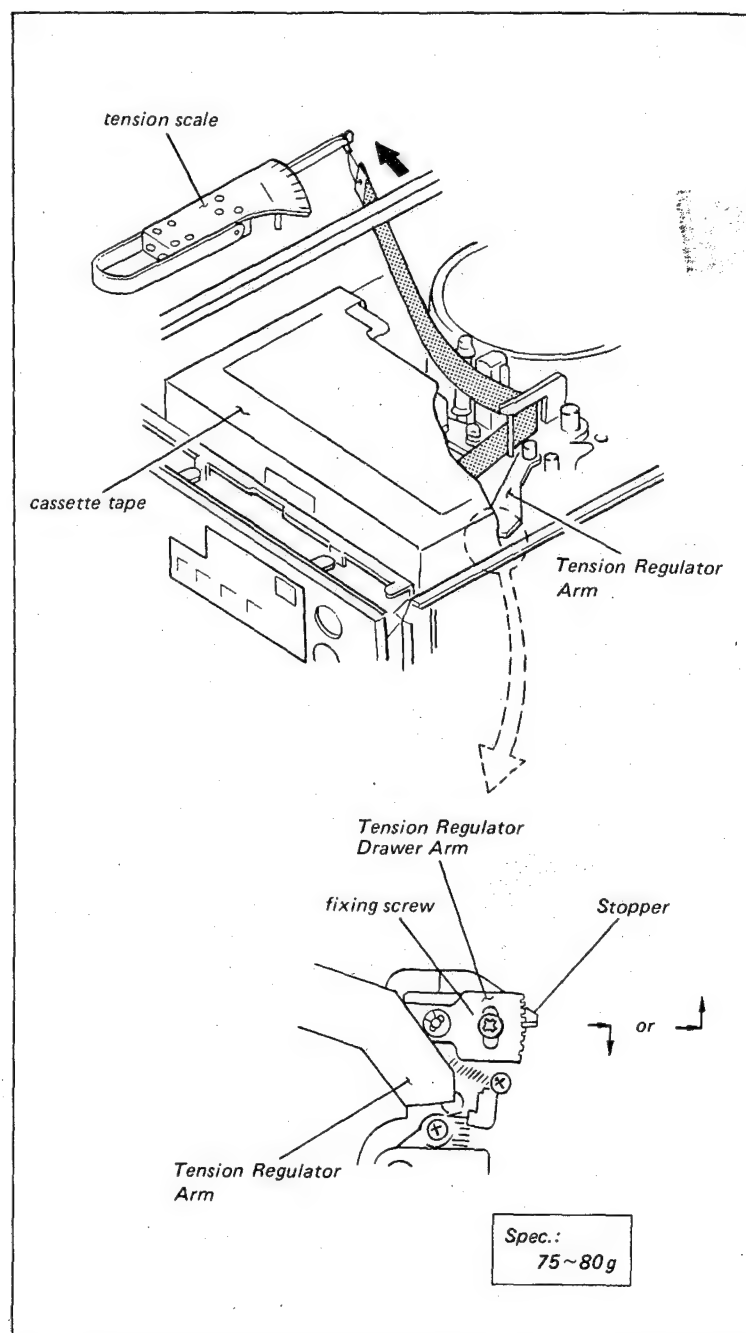
- (1) Short between TP4/SY Board and GND (frame) with a short clip lead. (Stop the function of the Tape Slack Detection Circuit)
- (2) Place the local specially-made cassette tape, and thread the tape as shown in the figure.
- (3) Hook the tension scale on the end of the tape.

**Check procedure:**

- (1) Put the machine into the PLAY mode.
- (2) Pull the tape at a constant speed of approx. 9cm/sec in the direction shown in the figure, and check that the scale reading meets the required specification.

**Adjustment procedure:**

- (1) Adjust the position of the stopper in the direction of the arrow so that it meets the required specification.



## SECTION 7

### TAPE RUN ALIGNMENT

#### 7-1. S-TENSION REGULATOR ARM SLANTNESS ADJUSTMENT

**Mode:** Threading end (POWER OFF)

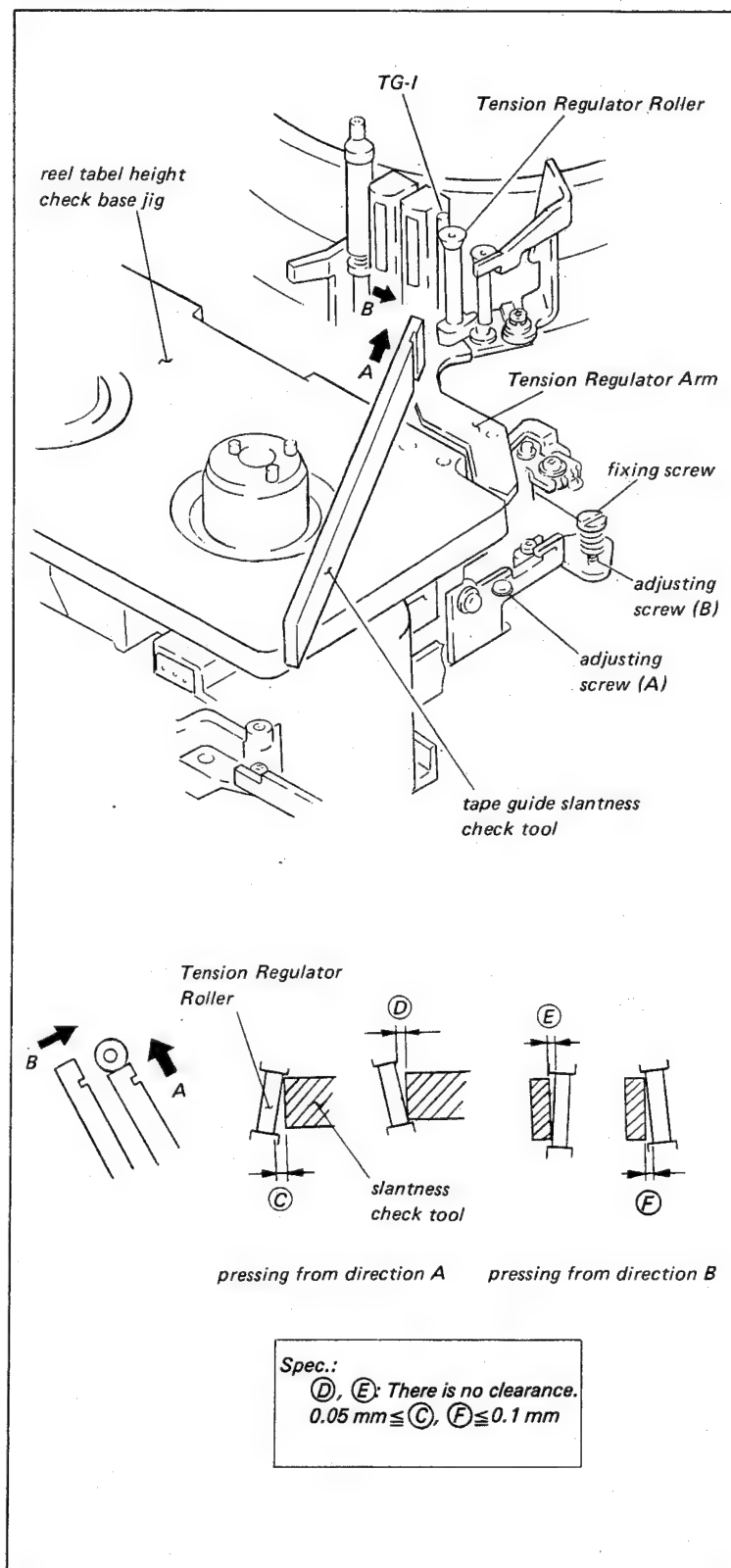
**Tool:** Reel table height check base jig  
Tape guide slantness check tool

**Check procedure:**

- (1) Put the reel table height check base jig in the cassette's position.
- (2) Push and lock the EJECT button.
- (3) Turn the pulley of the gear box by hand so that the Tape Guide Roller of the S Tension Regulator Arm is to the right of TG-I.
- (4) Place the tape guide slantness check tool against the Tape Guide Roller from directions A and B, as shown in the figure. Check that the slantness of the guide roller meets the required specification.

**Adjustment procedure:**

- (1) Loosen the fixing screw about 1 turn.  
 . When the slantness is out of spec. while pressing from direction A.
- (2) If there is a clearance at the top position, turn the adjusting screw (A) in the clockwise direction so that it meets the specification.
- (3) If there is a clearance at the bottom position, turn the adjusting screw (B) in the counterclockwise direction so that it meets the specification.  
 . When the slantness is out of spec. while pressing from direction B.
- (4) If there is a clearance at the top position, turn the adjusting screw (B) in the clockwise direction so that it meets the specification.
- (5) If there is a clearance at the bottom position, turn the adjusting screw (A) in the counterclockwise direction so that it meets the specification.
- (6) Tighten the fixing screw, and check again.





## 7-2. REV GUIDE SLANTNESS ADJUSTMENT

**Mode:** Unthreading end

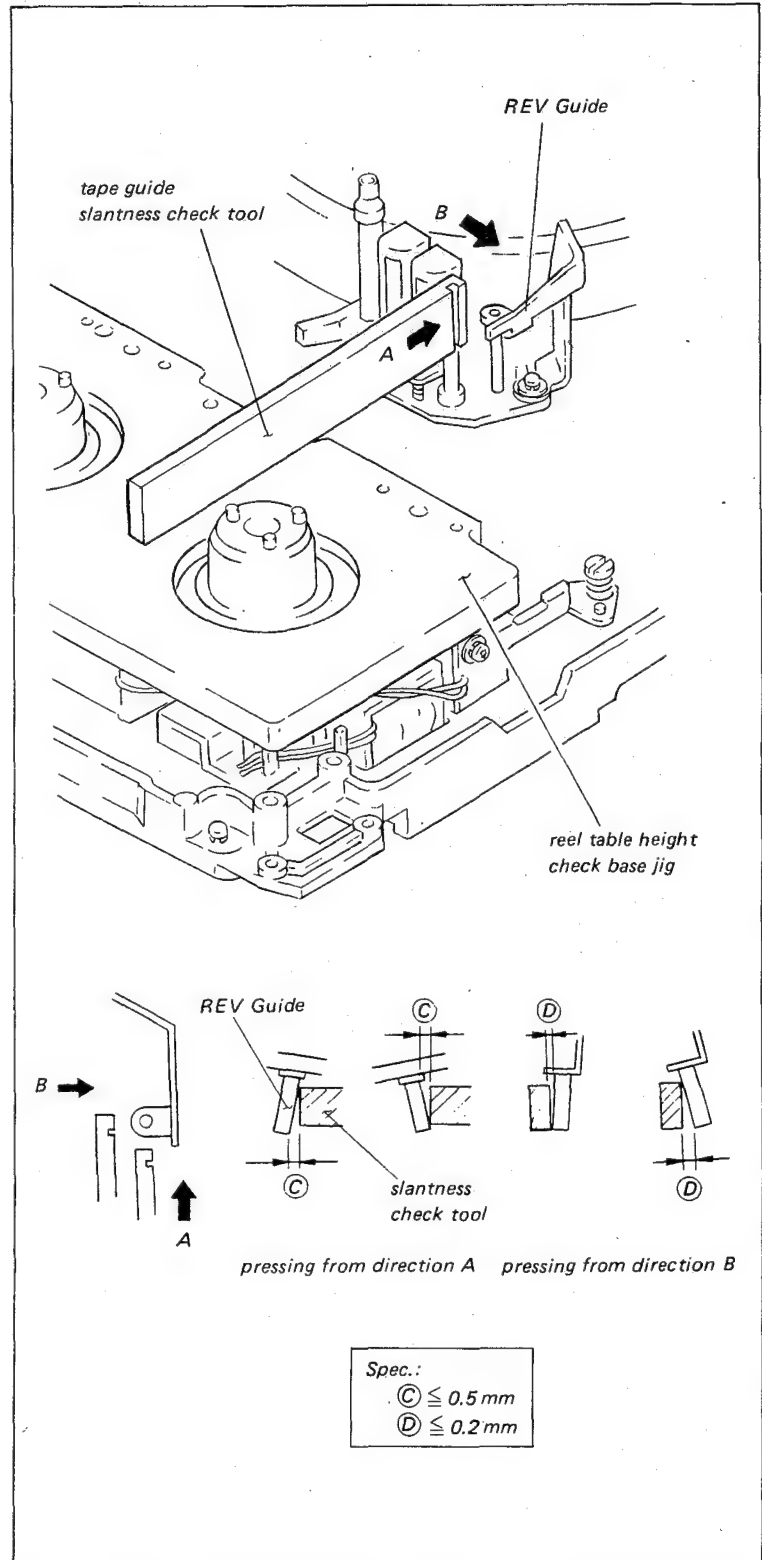
**Tool:** Reel table height check base jig  
Tape guide slantness check tool

### Check procedure:

- (1) Place the reel table height check base jig in the cassette's position.
- (2) Place the tape guide slantness check tool against the REV Guide, as shown in the figure. Check that the slantness meets the required specification.

### Adjustment procedure:

- (1) Push the lower side of the REV Guide by hand until it meets the required specifications.



### 7-3. TU ARM SLANTNESS ADJUSTMENT

**Mode:** Threading end

**Tool:** Reel table height check base jig

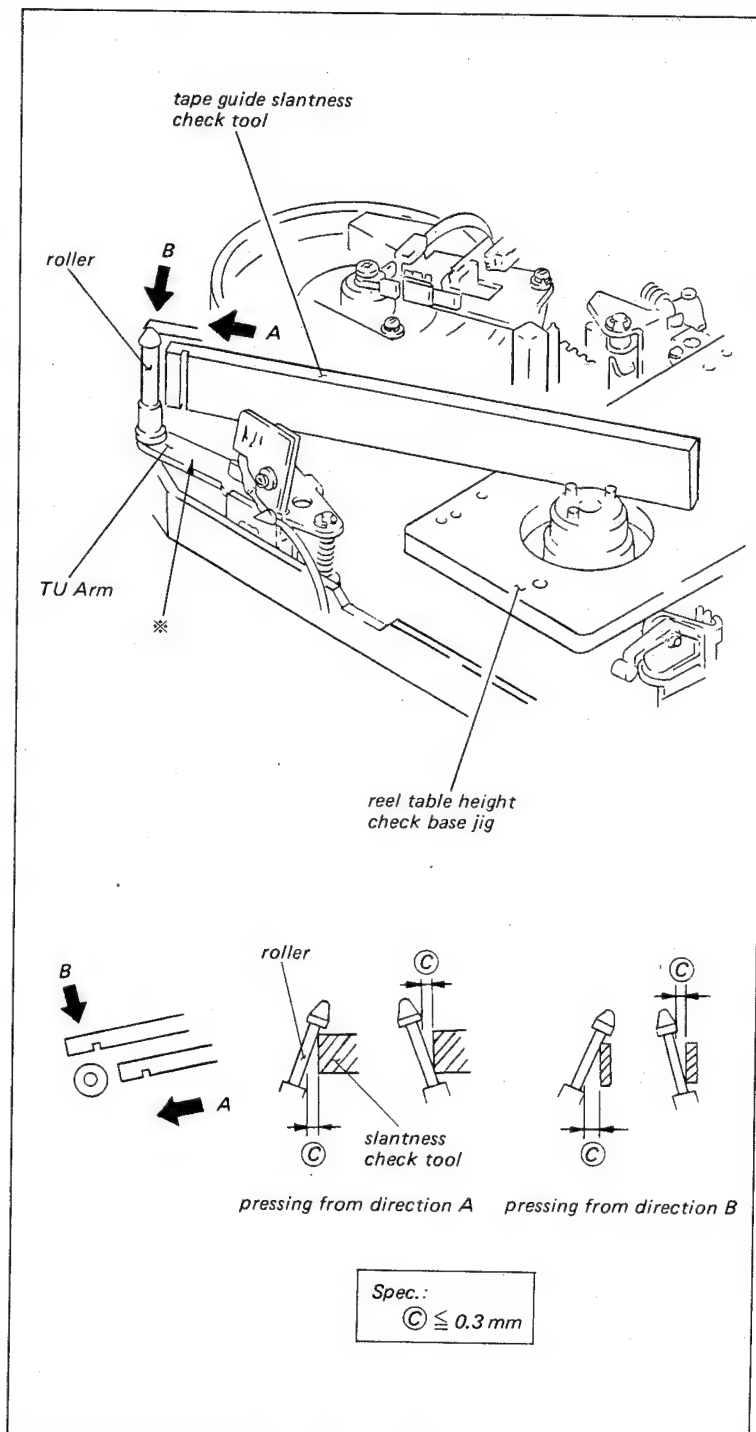
Tape guide slantness check tool

**Check procedure:**

- (1) Place the reel table height check base jig in the cassette's position.
- (2) Place the tape guide slantness check tool against the roller of the TU Arm as shown in the figure. Check that the slantness meets the required specification.

**Adjustment procedure:**

- (1) Bend the ※ marked portion of the TU Arm so that it meets the required specification.



#### 7-4. TU ARM ROLLER GUIDE HEIGHT ADJUSTMENT

**Mode:** PLAY and F.FWD

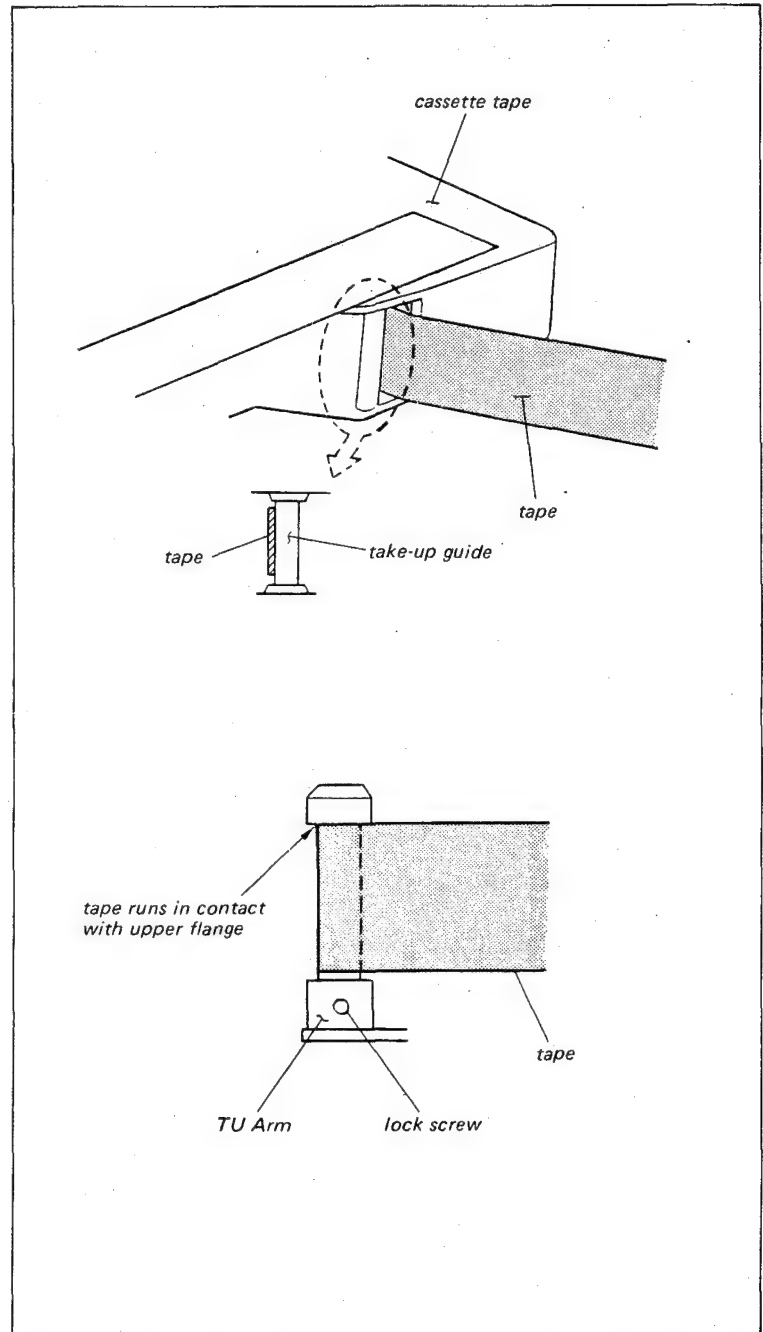
**Tool:** Cassette tape, KSP-S-20 or equivalent

**Check procedure:**

- (1) Insert the cassette tape and put the unit into the PLAY mode.
- (2) Check that the tape runs in the middle of the cassette's Take-up Guide.
- (3) Check that the tape runs in contact with the upper flange of the TU Arm.
- (4) Put the unit into the F.FWD mode.
- (5) Check in the same manner as Steps (2) and (3).

**Adjustment procedure:**

- (1) Loosen the locking screw.
- (2) Turn the upper flange of the tape guide to meet the required specification.



## 7-5. ERASE HEAD ZENITH ADJUSTMENT

**Mode:** Threading end

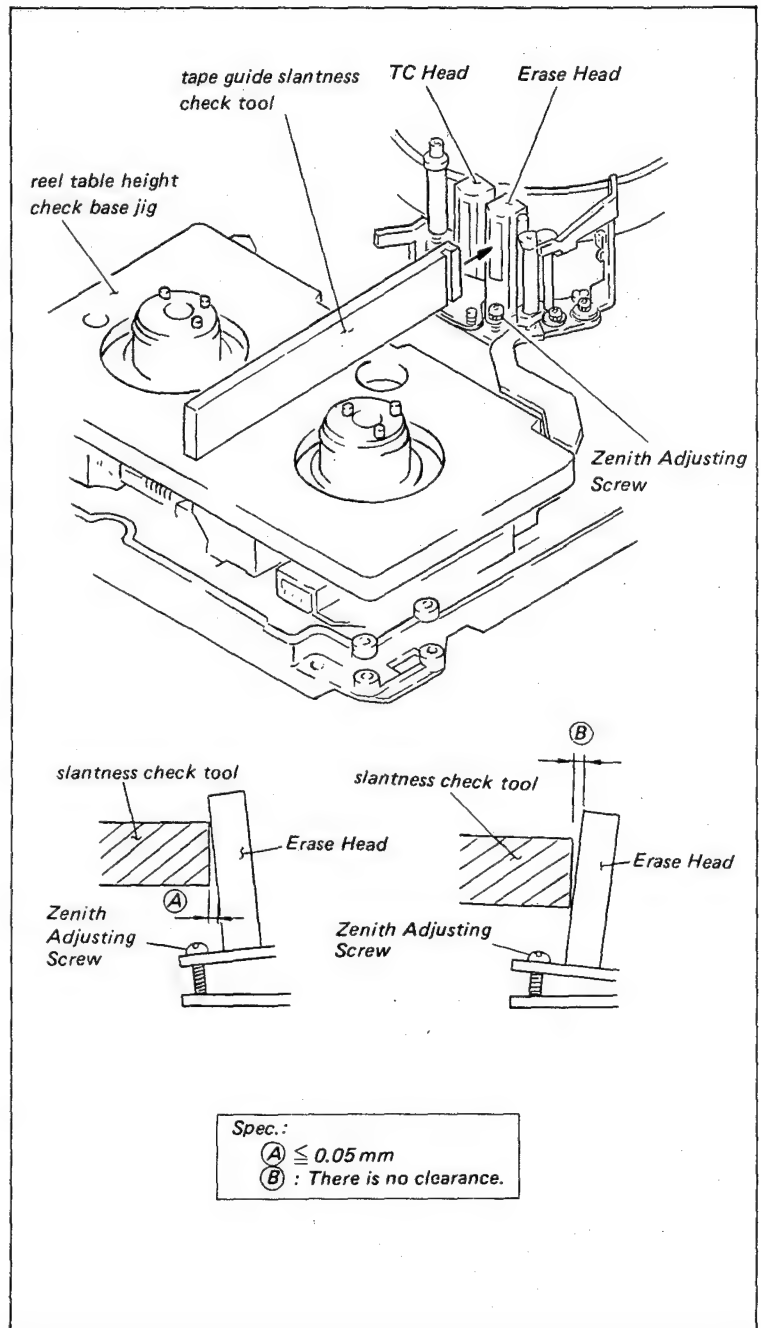
**Tool:** Reel table height check base jig  
Tape guide slantness check tool

**Check procedure:**

- (1) Install the reel table height check base jig in the cassette's position.
- (2) Place the tape guide slantness check tool against the Erase Head, as shown in the figure. Check that the zenith meets the required specification.

**Adjustment procedure:**

- . When the clearance at the bottom position is out of specification.
- (1) Turn the Zenith Adjusting Screw in the counterclockwise direction to meet the required specification.
- . When the clearance at the top position is out of specification.
- (2) Turn the Zenith Adjusting Screw in the clockwise direction to meet the required specification.



## 7-6. VIDEO TRACKING ADJUSTMENT

**Mode:** Playback the alignment tape

**Tool:** Alignment tape, RR2-1SD-PAL

Oscilloscope

Allen wrench (across flat has 1.27mm)

Small mirror for adjustment

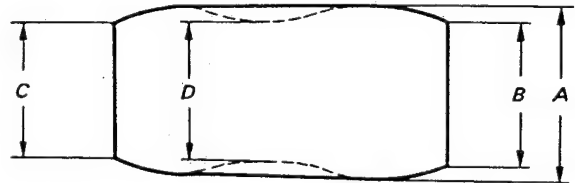
### Preparation:

- (1) Remove the Upper Case and Lower Case.
- (2) Connect the oscilloscope as follows:  
CH-1 : TP15/VA Board  
CH-2 : TP18/VA Board  
TRIG : CH-2  
GND : E3/VA Board
- (3) Short between TP2 and GND on the SV Board with a short clip lead.
- (4) Playback the alignment tape.
- (5) The other channel can observe by turning the +/- of the trigger slope of oscilloscope.

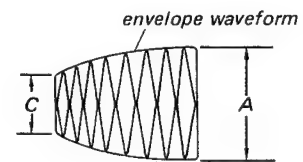
### Check procedure:

- (1) While turning the TRACKING control knob, check that the RF envelope maintains a flat envelope as it increases and decreases.
- (2) Check that the RF envelope fluctuation and the head-to-tape contact are within the specification at the center detent position of the TRACKING control knob in FWD, REW and FF modes.
- (3) Check that there is not any tape curl at the Tension Regulator, TG-I, TG-II, TG-III and TG-IV.
- (4) Put the unit into the PAUSE mode, and check that the RF envelope is not lacking.
- (5) Put the unit into the F.FWD and REW modes, and check the tape curl of each tape guides are within the specification.

FWD mode



REW, FF mode



### Spec.:

#### • FWD mode

##### head-to-tape contact

$$\frac{C}{A} \geq 0.7$$

$$\frac{B}{A} \geq 0.7$$

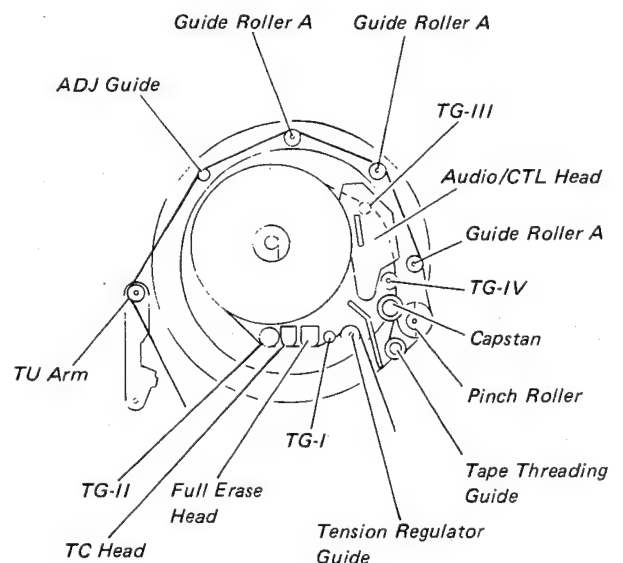
##### fluctuation

$$\frac{D}{A} \geq 0.9$$

#### • REW-FF mode

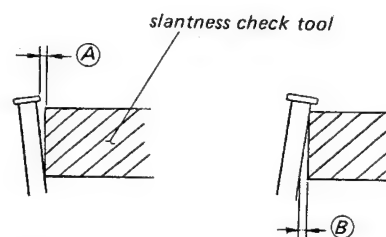
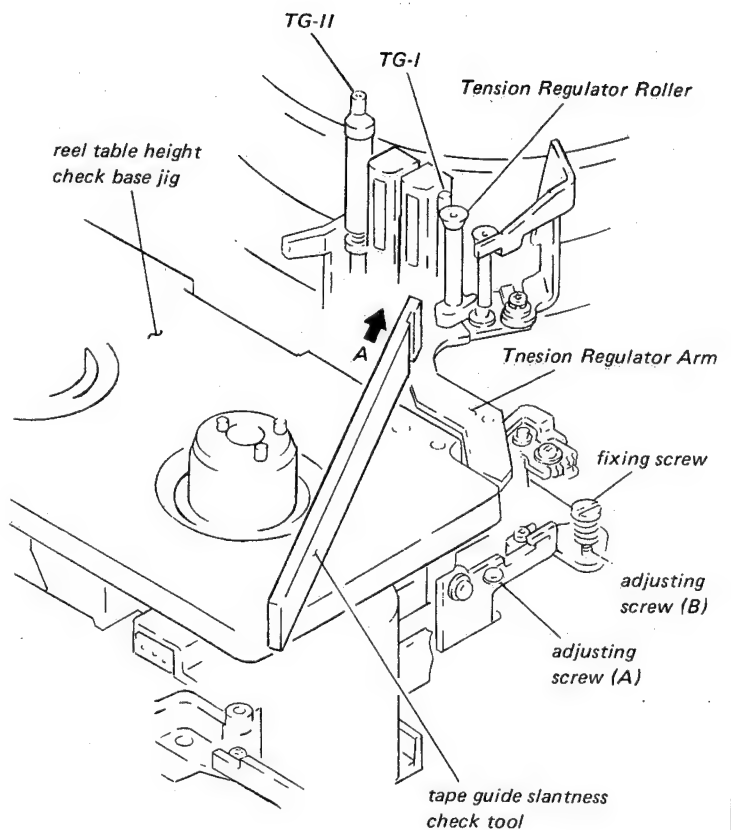
##### head-to-tape contact

$$\frac{C}{A} \geq 0.6$$



### Adjustment procedure:

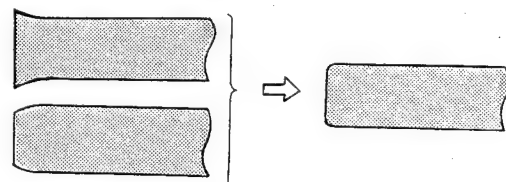
- . When adjusting the tape guide height.  
Loosen the set screw of each tape guide, and adjust the height by turning the upper flange or adjusting screw.
- . When the tracking at the drum entrance is not correct.
  - (1) Turn the TRACKING control knob so that the RF envelope amplitude is 70 to 80 % of the maximum amplitude.
  - (2) Turn the upper flange of TG-II so that the upper flange does not contact the upper edge of the tape.
  - (3) Adjust the height of the Tension Regulator by turning the upper flange to meet the following specifications:
    - . The tape runs in contact with the upper flange.
    - . The tape runs in contact with the lead of the Lower Drum.
    - . The RF envelope waveform is flat.
  - (4) Adjust the height of TG-I by turning the adjusting screw so that the tape runs in contact with the lower flange of TG-I. Turn the adjusting screw 1/4 turn in the clockwise direction from the above state so that there is a clearance between the tape and the lower flange. Tighten the lock screw.
  - (5) Adjust the height of TG-II by turning the upper flange so that the upper edge of the tape runs in contact with the upper flange.
  - (6) If the specification for the RF envelope fluctuation or the head-to-tape contact at the drum entrance is not met, adjust the slantness of the Tension Regulator to be within the range of the specification by turning the adjusting screw, as shown in the figure. Perform the Steps (1) through (5) again.



Contact the slantness check tool from the A direction.

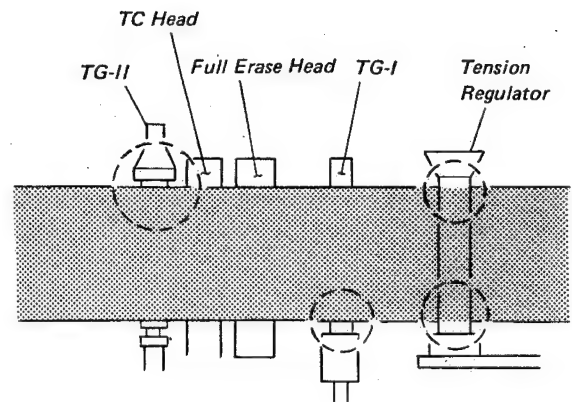
Spec.:  
 (A): There is no clearance.  
 $0.05 \text{ mm} \leq (B) \leq 0.1 \text{ mm}$

< drum entrance side >

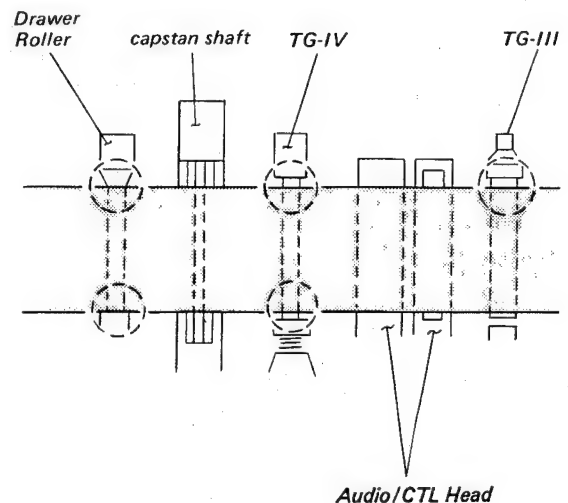
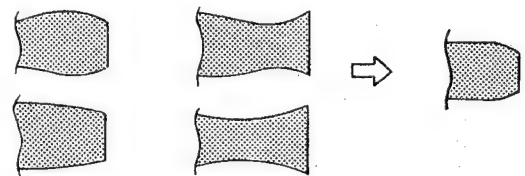


. When the tracking at the drum exit is not correct.

- (7) Turn the TRACKING control knob so that the RF envelope amplitude is 70 to 80 % of the maximum amplitude.
  - (8) Turn the upper flange of TG-III so that the upper flange does not contact the upper edge of the tape.
  - (9) Adjust the height of TG-IV by turning the upper flange to meet the following specifications:
    - . The tape runs in contact with the lead of the Lower Drum.
    - . The tape runs in contact with the upper flange of TG-IV.
    - . The RF envelope waveform is flat.
  - (10) Adjust the height of TG-III by turning the upper flange so that the upper edge of the tape runs in contact with the upper flange.
  - (11) If the specification of the RF envelope fluctuation or the head-to-tape contact at the drum exit is not met, adjust the slantness to be within the range of the specification. (Refer to sec.7-7, Audio/CTL Head Zenith Adjustment.)
- Perform Steps (7) through (10) again.



< drum exit side >



## 7-7. AUDIO/CTL HEAD ZENITH ADJUSTMENT

**Mode:** Turn the pulley of the gear box block by hand so that the guide on the Threading Ring is not located in front of the Audio/CTL Head.

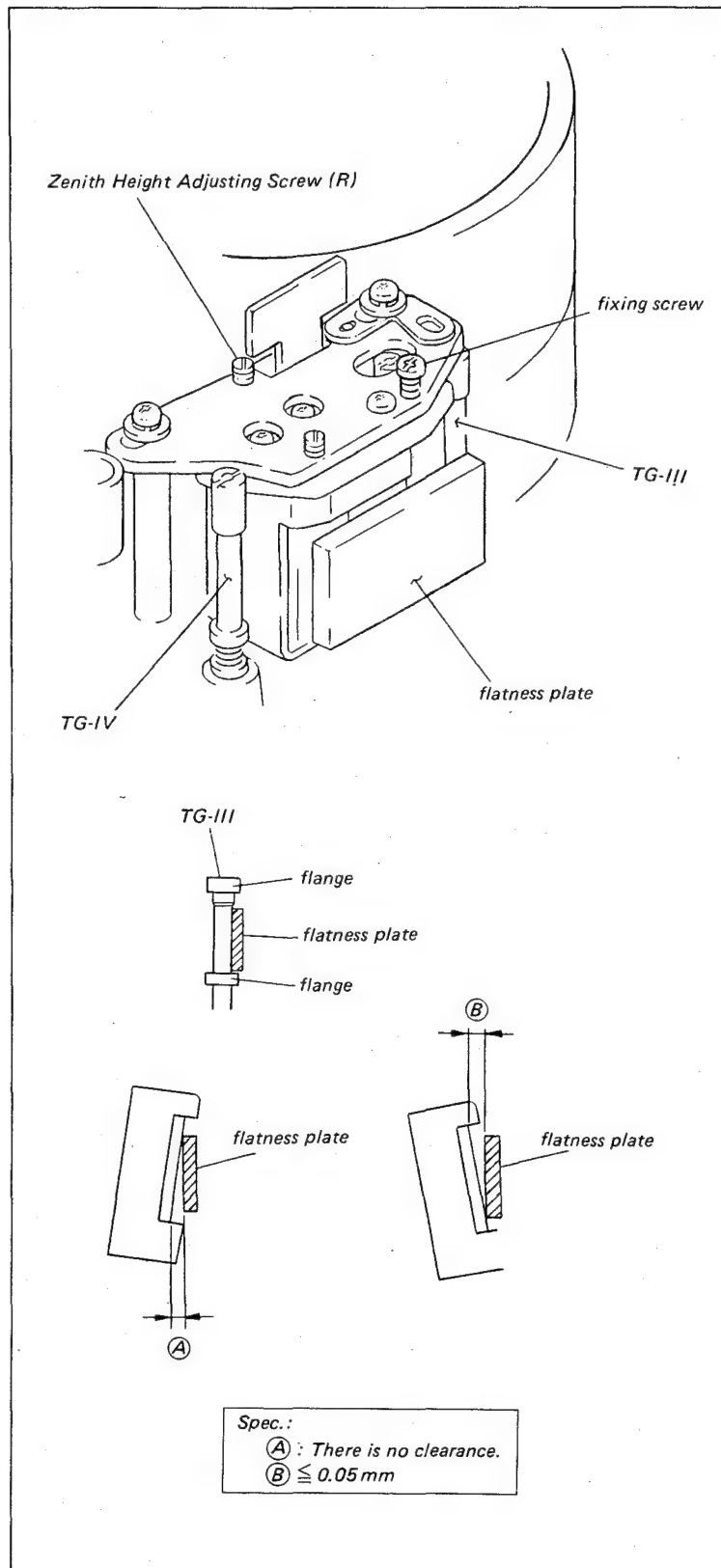
**Tool:** Flatness plate

**Check procedure:**

- (1) Place the flatness plate against the TG-III tape guide, as shown in the figure.
- (2) Check that the clearance between the head and the flatness plate meets the required specification, when the flatness plate is set on the flat portion of TG-III and the CTL Head.

**Adjustment procedure:**

- . If there is a clearance at the bottom position.
- (1) Loosen the fixing screw 1/4 to 1/2 turn.
- (2) Turn the Zenith Height Adjusting Screw (R) in the clockwise direction and adjust the zenith.
- (3) Tighten the fixing screw and check again.
- . If the clearance at the top position is out of the required specification.
- (4) Turn the zenith Height Adjusting Screw (R) in the counterclockwise direction and adjust the zenith.
- (5) Tighten the fixing screw and check again.





## 7-8. AUDIO HEAD HEIGHT ADJUSTMENT

**Mode:** Playback the alignment tape

**Tool:** Alignment tape, RR5-1SD-PAL

Dual trace oscilloscope or AC  
voltmeter

### Preparation:

- (1) Connect the oscilloscope or AC voltmeter to AUDIO OUT CH-1 and CH-2.
- (2) Playback the audio 1kHz signal portion of the alignment tape.

### Check procedure:

- (1) While pressing down on the tape at (a), check that the level decreases.
- (2) While pushing up on the tape at (b), check that the level decreases.

### Adjustment procedure:

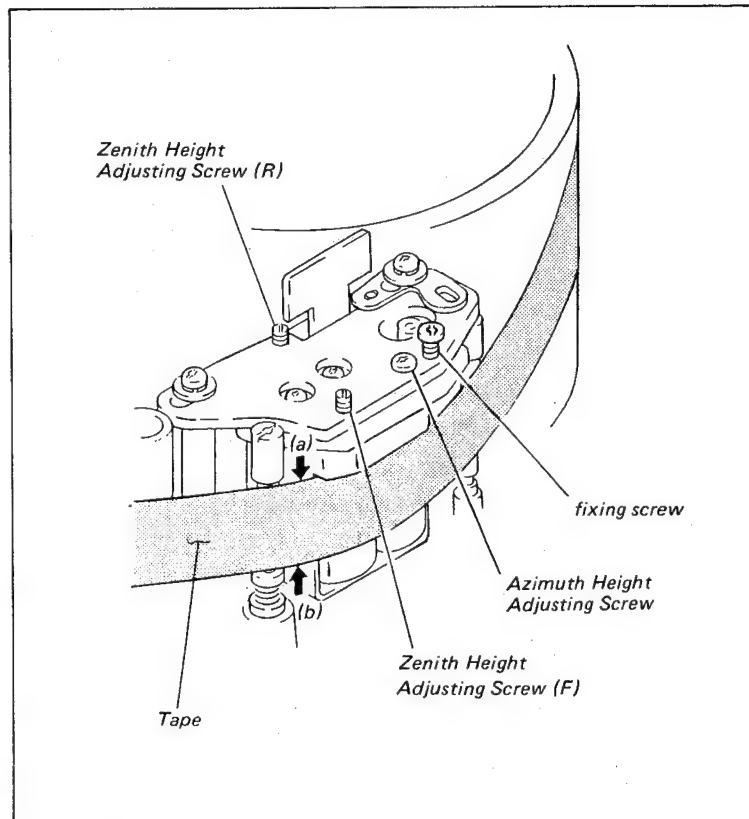
. If the level increases while pressing down on the tape at (a).

- (1) Loosen the fixing screw 2 to 3 turns. Turn the Zenith Height Adjusting Screws (R) and (F) in the counter-clockwise direction and turn the Azimuth Height Adjusting Screw an exactly equal amount in the clockwise direction. Adjust for maximum output.

- (2) After the adjustment, tighten the fixing screw and check again.

. If the level increases while pushing up on the tape at (b).

- (3) Turn the Zenith Height Adjusting Screws (R) and (F) in the clockwise direction and turn the Azimuth Height Adjusting Screw an exactly equal amount in the counterclockwise direction. Adjust for maximum output.
- (4) After the adjustment, tighten the fixing screw and check again.



## 7-9. AUDIO HEAD PHASE ADJUSTMENT

**Mode:** Playback the alignment tape

**Tool:** Alignment tape, RR5-1SD-PAL

Dual trace oscilloscope

### Preparation:

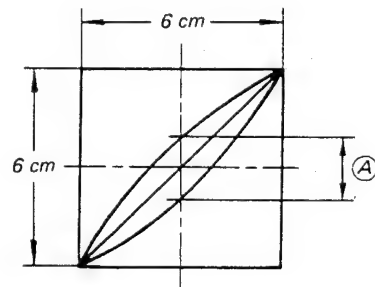
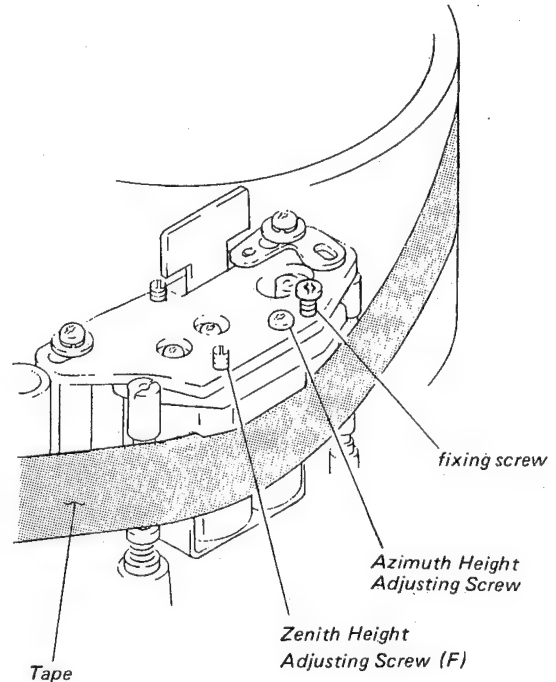
- (1) Connect the HORIZONTAL and VERTICAL terminals of the oscilloscope to AUDIO OUT CH-1 and CH-2.
- (2) Playback the audio 10kHz signal portion of the alignment tape.
- (3) Adjust the scope for a lissajous waveform with horizontal and vertical amplitudes of 6cm.

### Check procedure:

- (1) Check that the vertical amplitude of the signal at X=0 meets the required specification.
- (2) Playback the audio 1kHz signal portion of the alignment tape, and check that the lissajous waveform meets the required specification.

### Adjustment procedure:

- (1) Loosen the fixing screw about 1/4 to 1/2 turn.
- (2) Turn the Azimuth Height Adjusting Screw to meet the required specification.
- (3) Tighten the fixing screw, and check the phase again.



Spec.:

10 kHz:  $A \leq 1.5 \text{ cm}$

1 kHz:  $A \leq 0.52 \text{ cm}$

## 7-10. CTL HEAD POSITION ADJUSTMENT

**Mode:** Playback the alignment tape

**Tool:** Alignment tape, RR2-1SD-PAL

Oscilloscope

Eccentric screwdriver (4mm dia.)

### Preparation:

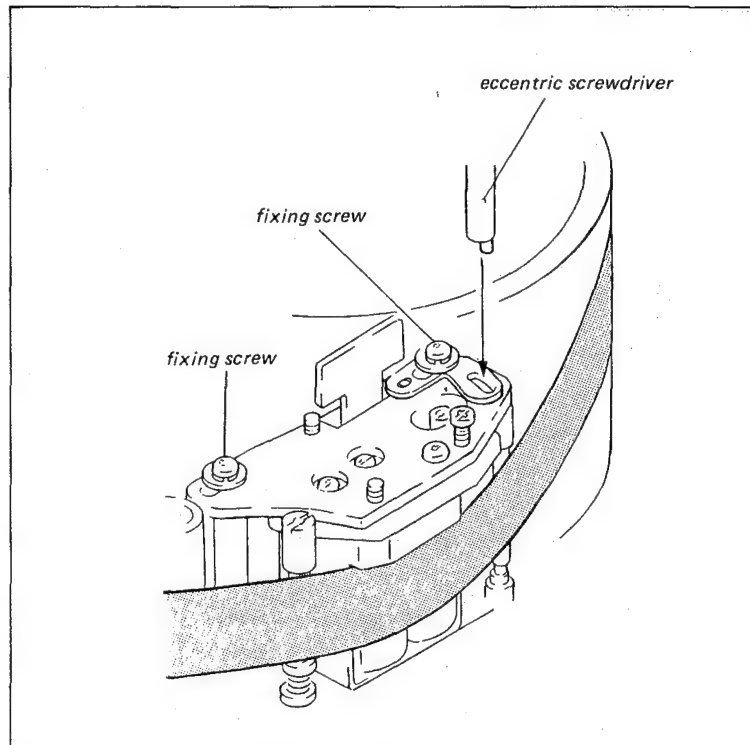
- (1) Remove the Upper Case and Lower Case.
- (2) Connect the oscilloscope as follows:  
CH-1 : TP15/VA Board  
TRIG : TP18/VA Board  
GND : E3/VA Board
- (3) Short between TP2 and GND on the SV Board with a short clip lead.
- (4) Playback the alignment tape.

### Check procedure:

- (1) While turning the TRACKING control knob, check that the RF envelope has the maximum amplitude at the center detent position.

### Adjustment procedure:

- (1) Loosen the two fixing screws about 1/4 to 1/2 turn.
- (2) Insert the eccentric screwdriver into the hole, as shown in the figure. Adjust the CTL head position to meet the required specification.



## 7-11. TC HEAD ZENITH ADJUSTMENT

**Mode:** Unthreading-end

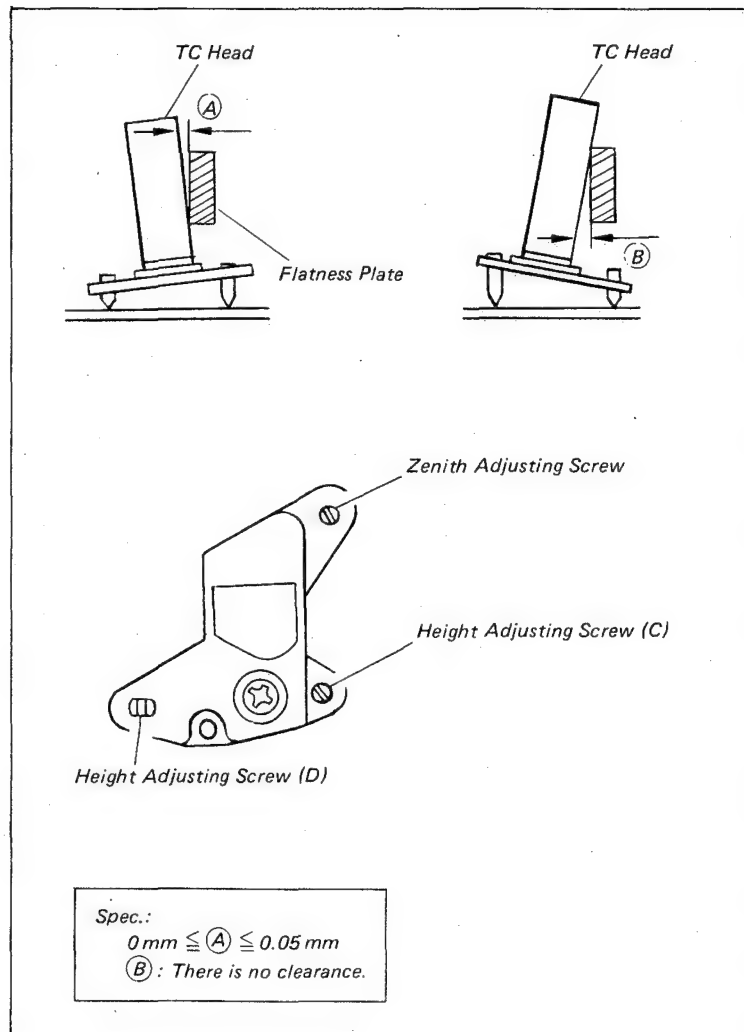
**Tool:** Flatness plate

**Check procedure:**

- (1) Check that the clearance between the TC Head and the Flatness Plate meets the required specification, when the Flatness Plate is set on the TG-II and the TC Head.

**Adjustment procedure:**

- (1) Turn the Zenith Adjusting Screw to meet the required specification.



## 7-12. TC HEAD HEIGHT ADJUSTMENT

**Mode:** Playback the alignment tape

**Tool:** Alignment tape, RR5-1SD-PAL

Oscilloscope

Audio noise meter

### Preparation:

- (1) Connect the Audio noise meter to the TP204 (or 6pin/CN11) on the SY Board and then watch the AC output by the oscilloscope (Audio noise meter; Use rms range, filter of DIN/AUDIO or JIS A).
- (2) Playback the time code signal recorded segment of the alignment tape.

### Check procedure:

- (1) While pressing down on the tape at (a), check that the level decreases.
- (2) While pushing up on the tape at (b), check that the level decreases.

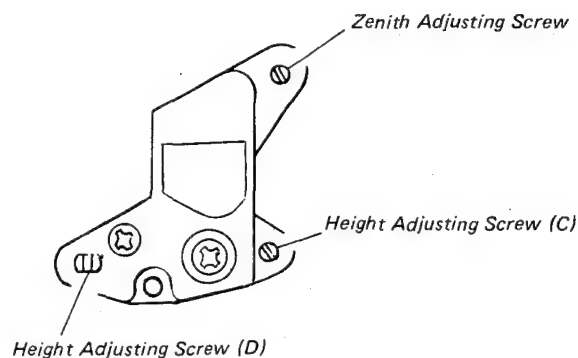
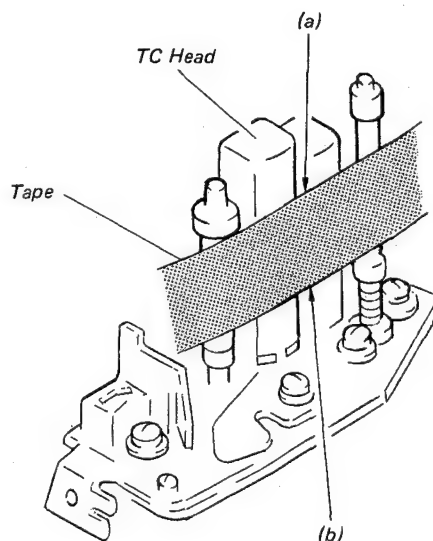
### Adjustment procedure:

- . If the level increases while pressing down on the tape at (a).

- (1) Turn the Height Adjusting Screws (C) and (D), and Zenith Adjusting Screw an exactly equal amount in the clockwise direction.

- . If the level increases while pushing up on the tape at (b).

- (2) Turn the Height Adjusting Screws (C) and (D), and Zenith Adjusting Screw an exactly equal amount in the counter-clockwise direction.



### 7-13. TC HEAD TAPE-TO-HEAD CONTACT ADJUSTMENT

**Mode:** Playback the alignment tape

**Tool:** Alignment tape, RR5-1SD-PAL

Audio noise meter

Oscilloscope

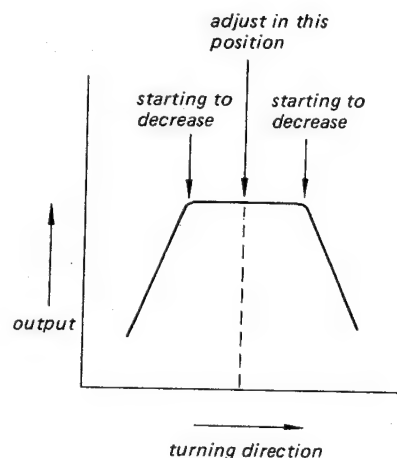
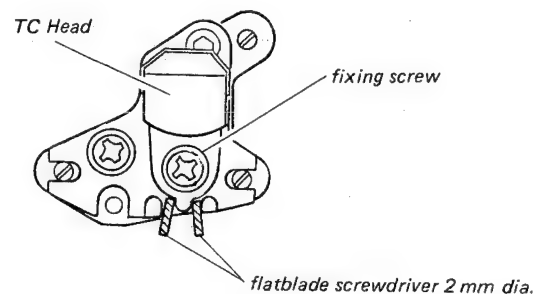
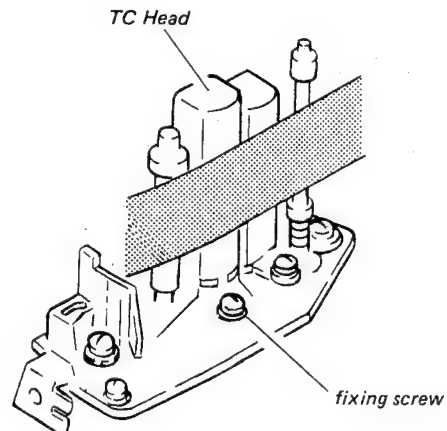
Eccentric screwdriver (4mm dia.)

**Preparation:**

- (1) Connect the Audio noise meter to the TP204 (or 6pin/CN11) on the SY Board and then watch the AC output by the oscilloscope (Audio noise meter; Use rms range, filter of DIN/AUDIO or JIS A).
- (2) Playback the time code signal recorded segment of the alignment tape.

**Adjustment procedure:**

- (1) Loosen the fixing screw of the TC Head about 1/2 to 1 turn.
- (2) Insert a flatblade screwdriver, 2mm dia. as shown in the figure. Adjust the TC Head Block where the output is maximum and starting to decrease.
- (3) Set the TC Head Block on the middle portion of two points and tighten the fixing screws to meet the required specification.



Spec.:  
alteration amount of  
the output level:  
under 0.5 dB

## 7-14. TC HEAD POSITION ADJUSTMENT

**Mode:** Playback the alignment tape

**Tool:** Dual trace oscilloscope

Audio noise meter

Alignment tape, RR5-1SD-PAL

Eccentric screwdriver (4mm dia.)

### Preparation:

- (1) Connect the oscilloscope as follows:

CH-1 : Connect the Audio noise meter to the TP204 (or 6pin/CN11) on the SY Board and then connect it to the AC output (Audio noise meter; Use rms range, filter of DIN/AUDIO or JIS A).

CH-2 : TP5/SV Board

TRIG : CH-2

- (2) Playback the time code signal recorded segment of the alignment tape.

### Check procedure:

- (1) Check that the relationship between the CTL signal and the time code signal meets the required specification.

### Adjustment procedure:

- (1) Loosen the fixing screw about 1/2 to 1 turn.
- (2) Insert the eccentric screwdriver into the hole, as shown in the figure. Adjust the TC Head Position to meet the required specification.
- (3) Tighten the fixing screw and confirm the required specification.

Fig-1

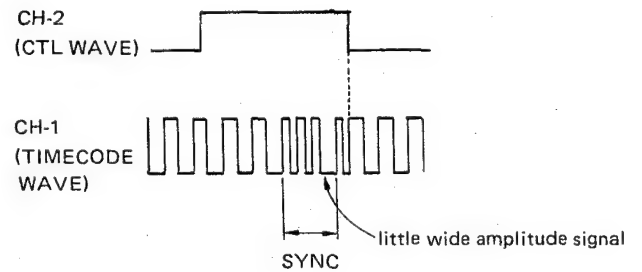
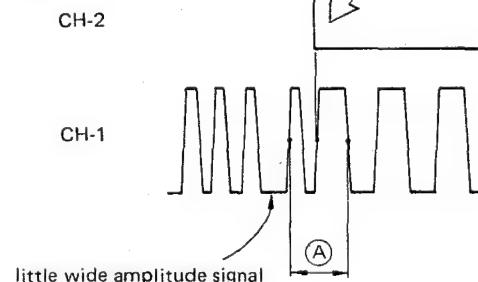
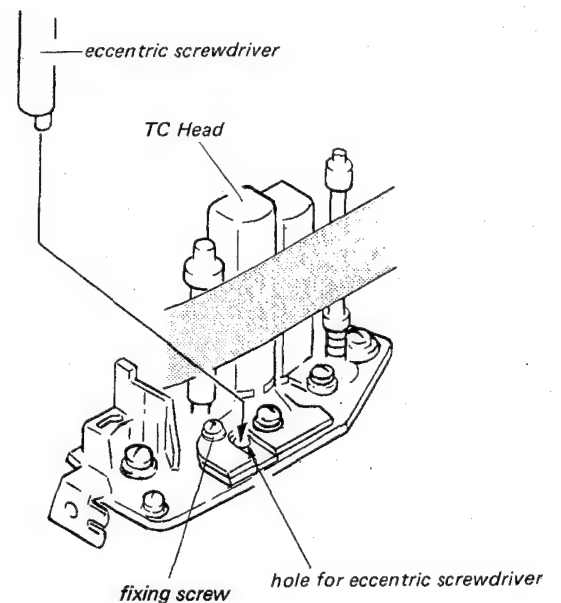


Fig-2



Spec.: The falling edge is within (A) period.



## 7-15. SWITCHING POSITION ADJUSTMENT

### 7-15-1. R/P Head Switching Position Adjustment

**Mode:** Playback the alignment tape

**Tool:** Alignment tape, RR2-1SD-PAL

Dual trace oscilloscope

**Preparation:**

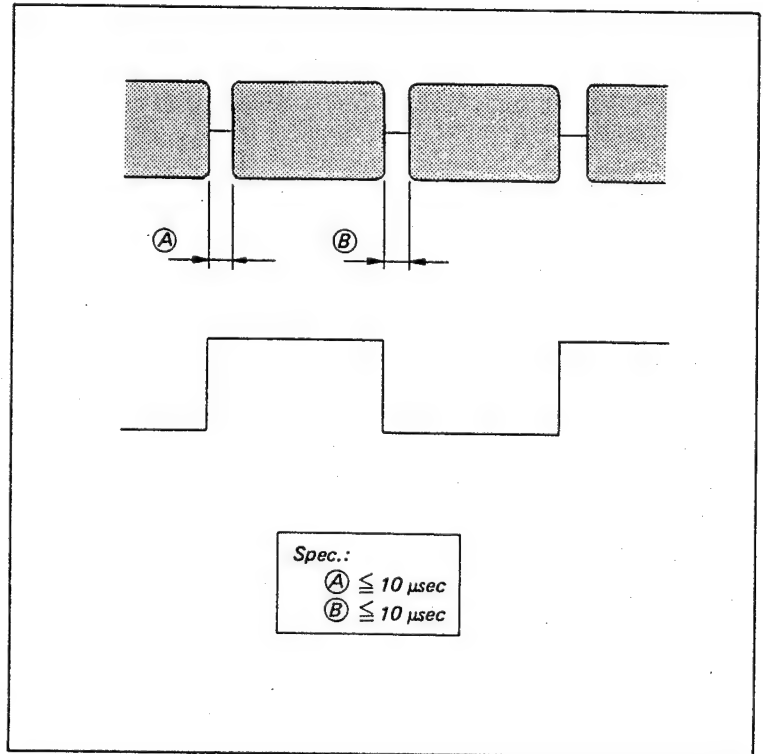
- (1) Remove the Upper Case and Lower Case.
- (2) Connect the oscilloscope as follows:  
CH-1 : TP15/VA Board  
CH-2 : TP18/VA Board  
TRIG : CH-2  
GND : E3/VA Board
- (3) Short between TP2 and GND on the SV Board with a short clip lead.
- (4) Turn the TRACKING control knob to the center detent position.
- (5) Playback the alignment tape.

**Check procedure:**

- (1) Check that the waveform at the switching pulse portion meets the required specification.
- (2) If it meets the required specification, disconnect the short clip lead.

**Adjustment procedure:**

- (1) Adjust RV6 and RV7/SV Board to meet the required specification.
- (2) After adjustment, disconnect the short clip lead.





## 7-15-2. Confidence Head Switching Position Adjustment

**Mode:** REC mode

**Tool:** KSP-S-20 cassette tape

Dual trace oscilloscope

### Preparation:

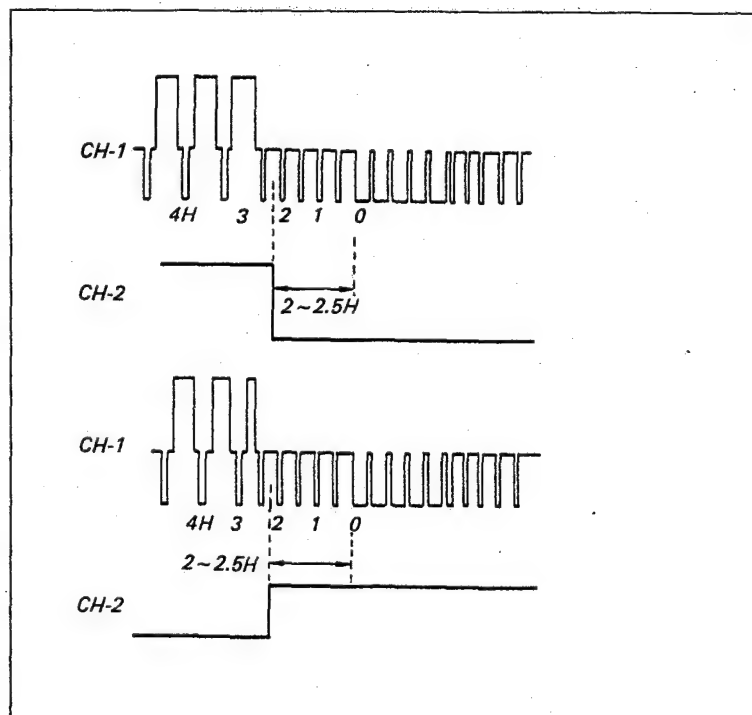
- (1) Remove the Upper Case and Lower Case.
- (2) Connect the video signal to the VIDEO IN connector.
- (3) Connect the oscilloscope as follows:  
CH-1 : TP501/VA Board  
CH-2 : TP18/VA Board  
TRIG : CH-2
- (4) Insert the cassette tape
- (5) Put the unit into the REC mode.

### Check procedure:

- (1) Check that the waveform at the switching pulse portion meets the required specification.

### Adjustment procedure:

- (1) Adjust RV11/SV Board to meet the required specification.



## 7-16. VIDEO HEAD DIHEDRAL ADJUSTMENT

. This adjustment is performed only for the REC/PB Head.

**Mode:** Playback the alignment tape

**Tool:** Alignment tape, RR5-1SD-PAL

Dihedral adjusting eccentric screwdriver

Monitor TV

### Preparation:

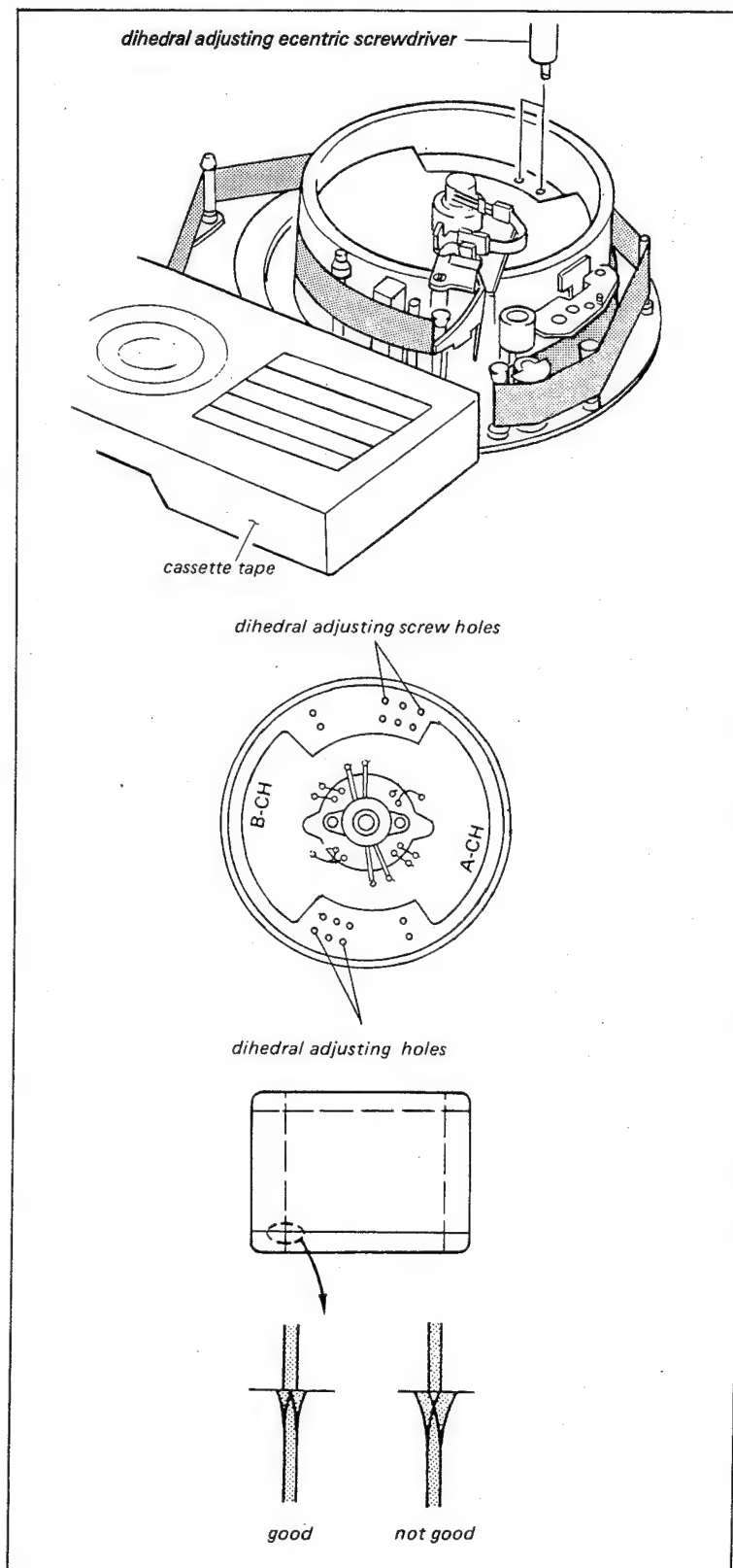
- (1) Connect a monitor-TV to the VTR.
- (2) Playback the monoscope signal portion of the alignment tape.

### Check procedure:

- (1) Check that the vertical line of the monoscope signal under the switching pulse is played back as one line.  
(If two lines are visible, adjustment is required.)

### Adjustment procedure:

- (1) Insert the dihedral adjusting eccentric screwdriver into the dihedral adjusting holes and adjust the dihedral of the video head.
- (2) When the monoscope signal is played back and distortion of the vertical line has gotten worse than before adjustment, insert the dihedral adjusting eccentric screwdriver into the other dihedral adjusting holes of the same video head and adjust the dihedral of the video head.



## SECTION 8

### POWER SUPPLY/SYSTEM CONTROL ALIGNMENT

**[Equipment Required]**

- DC Voltmeter
- Oscilloscope
- AC Adapter (AC-500CE)
- NOTE: AC-500CE DC output is 13Vdc.
- Video Camera
- Blank Tape: KCS or KSP-S Tape

#### 8-1. SAVE +10V ADJUSTMENT

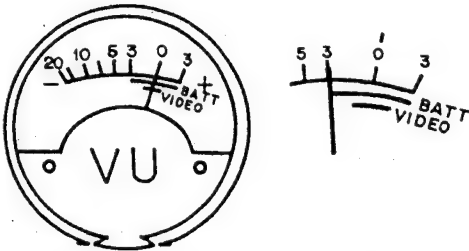
machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• DC IN 12V: <math>+12 \pm 0.02V</math></li> <li>• EE mode</li> </ul>	TP902/VA-76(K-9)  $10.50 \pm 0.005Vdc$	RV901/VA-76(L-7)

NOTE: If the SAVE +10V adjustment is attempted, re-alignment of the video and servo systems are required.

Do not attempt adjustment of the SAVE +10V power supply unless the unit performance is obviously poor due to incorrect power supply voltage. If adjustments are made to the power supply, re-alignments of the video and servo systems are necessary.

#### 8-2. BATTERY METER CALIBRATION ADJUSTMENT

[NOTE] When performing this adjustment, be sure not to put the tape portion into the top or the end.

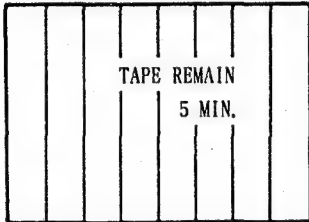
machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Short between TP4/SY-131A(B-2) and the chassis in the VO-8800P with a shorting clip.</li> <li>• METER SELECT sw: BATT</li> <li>• Insert a KCS or KSP-S tape.</li> <li>• PB mode</li> <li>• DC IN 12V: EXT DC (at TP901/VA-76(L-7): <math>11.0 \pm 0.02Vdc</math>)</li> </ul>	BATTERY meter    Set the pointer to the left end of BATT scale.	RV902/VA-76(M-8)

### 8-3. BATTERY LEVEL DETECTION ADJUSTMENT

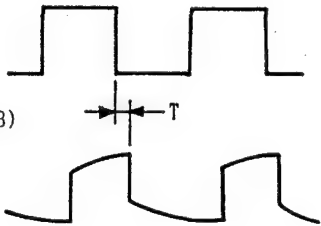
[NOTE] When performing this adjustment, be sure not to put the tape portion into the top or the end.

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Short TP4/SY-131A(E-2) and the chassis in the VO-8800P with a shorting clip.</li> <li>• DC IN 12V: EXT DC</li> <li>• Connect a camera to the VO-8800P.</li> <li>• Insert a KCS or KSP-S tape.</li> <li>• REC mode</li> </ul>	TP901/VA-76(L-7)  $10.99 \pm 0.005\text{Vdc}$	⚙EXT DC voltage
	TP1/SY-131A(H-2)  Adjust to the point whose level changes from pulse output to low level. (Approximately 1V noise will remain.)	⚙RV1/SY-131A(G-2)

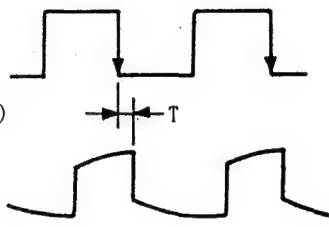
### 8-4. CHARACTER SIZE ADJUSTMENT

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Connect a video camera to the CAMERA connector.</li> <li>• CAMERA OUT: color-bar signal</li> <li>• Insert a KCS or KSP-S tape.</li> <li>• REC mode</li> <li>• Press the Return Video button on the video camera.</li> </ul>	Viewfinder screen on the camera    The right end of character N in the "TAPE REMAIN" should be positioned on the left end of second color bar from the rightest side.	⚙CV501/VA-76(B-2)

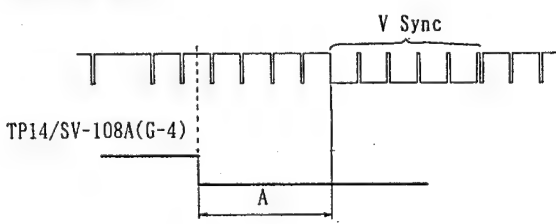
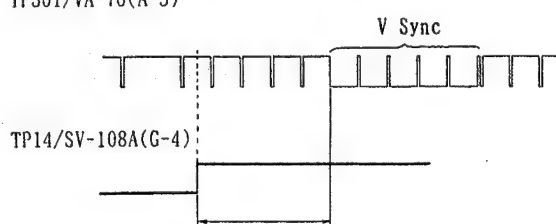
### 9-3. REC TRACKING ADJUSTMENT

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• VIDEO IN: color-bar signal</li> <li>• Set the TRACKING volume to the center clicked position.</li> <li>• Attach a safty cap to the alignment tape RR5-1SD PAL.</li> <li>• Play back the pulse &amp; bar (color) signal portion on the alignment tape RR5-1SD PAL.</li> <li>• Adjust pushing the REC button in the PB mode.</li> <li>• After this adjustment is completed, remove the safty cap from the alignment tape.</li> </ul>	<p>TP8/SV-108A(J-1)</p>  <p>TP5/SV-108A(G-3)</p> <p><math>T = 0 \pm 50\mu\text{sec}</math> (Read the level at the center of jitter)</p>	<p>RV4/SV-108A(F-4)</p> <ul style="list-style-type: none"> <li>• Adjust after 30 seconds pass in the PLAY mode.</li> </ul> <p>TRIG: TP8/SV-108A(J-1)</p>

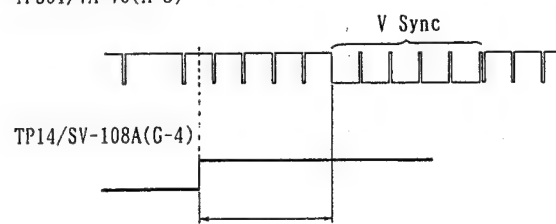
### 9-4. CAPSTAN FAST LOCK PHASE ADJUSTMENT

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Set the TRACKING volume to the center clicked position.</li> <li>• Short between TP5/SY-131A(C-3) and the chassis in the VO-8800P with a shorting clip.</li> <li>• Play back the color-bar signal portion on the alignment tape RR5-1SD PAL, and then put the unit into the PLAY-PAUSE mode.</li> <li>• Put the unit into the PLAY mode in order to release the PAUSE condition.</li> </ul>	<p>TP8/SV-108A(J-1)</p>  <p>TP5/SV-108A(G-3)</p> <p><math>T = 0 \pm 50\mu\text{sec}</math> (Read the level at the center of jitter)</p>	<p>RV15/SV-108A(D-2)</p> <p>TRIG: TP8/SV-108A(J-1)</p>

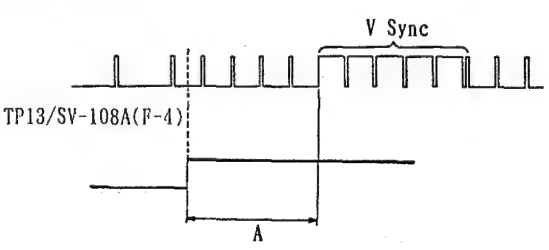
## 9-5. SWITCHING POSITION ADJUSTMENT

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Short between TP2/SV-108A(G-3) and E1/SV-108A(G-1) with a shorting clip.</li> <li>• Play back the color-bar signal portion on the alignment tape RR5-1SD PAL.</li> </ul>	<p>A adjustment TP301/VA-76(A-5)</p>  <p><math>A = 2.25 \pm 0.15H</math></p>	<p>RV7/SV-108A(G-1)</p> <p>TRIG: TP8/SV-108A(J-1)</p>
	<p>B adjustment TP301/VA-76(A-5)</p>  <p><math>A = 2.25 \pm 0.15H</math></p>	<p>RV6/SV-108A(G-2)</p> <p>TRIG: TP8/SV-108A(J-1)</p>

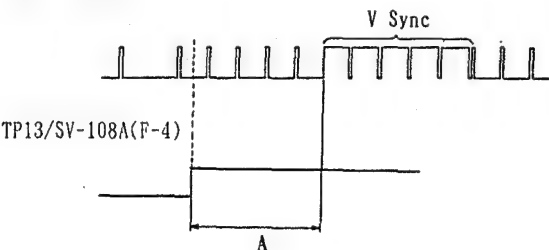
## 9-6. CONFIDENCE SWITCHING POSITION ADJUSTMENT

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• VIDEO IN: color-bar signal</li> <li>• REC mode</li> </ul>	<p>TP501/VA-76(A-3)</p>  <p><math>A = 2.25 \pm 0.15H</math></p>	<p>RV11/SV-108A(E-3)</p> <p>TRIG: TP8/SV-108A(J-1)</p>

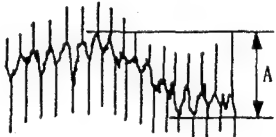
### 9-7. DRUM LOCK PHASE ADJUSTMENT

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• VIDEO IN: color-bar signal</li> <li>• Short between TP16/SV-108A(G-2) and E1/SV-108A(G-1) with a shorting clip.</li> <li>• Insert a KCS, or KSP-S tape.</li> <li>• REC mode</li> </ul>	<p>TP1/SV-108A(J-3)</p>  <p>TP13/SV-108A(F-4)</p> <p><math>A = 2.25 \pm 0.25H</math></p>	<p>RV5/SV-108A(F-1)</p> <p>TRIG: TP8/SV-108A(J-1)</p>

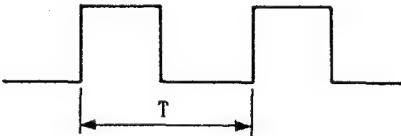
### 9-8. $\phi^2$ PHASE ADJUSTMENT

machine conditions for adjustment	specification	adjustments
<p>Step 1</p> <ul style="list-style-type: none"> <li>• VIDEO IN: color-bar signal</li> <li>• Insert a KCS or KSP-S tape.</li> <li>• REC mode</li> </ul>	<p>TP1/SV-108A(J-3)</p>  <p>TP13/SV-108A(F-4)</p> <p><math>A = 2.25 \pm 0.25H</math></p>	<p>RV3/SV-108A(H-1)</p> <p>TRIG: TP8/SV-108A(J-1)</p>

### 9-9. PICTURE SPLITTING COMPENSATION ADJUSTMENT

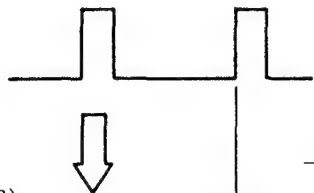

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Play back the color-bar signal portion on the alignment tape RR5-1SD PAL.</li> </ul>	<p>pin14 of IC14/SV-108A(D-1)</p>  <p>Minimize the error voltage A</p>	<p>Phase adjustment</p> <p>RV9/SV-108A(E-1)</p> <p>Level adjustment</p> <p>RV10/SV-108A(E-2)</p> <p>TRIG: TP8/SV-108A(J-1)</p>

## 9-10. REEL MOTOR SPEED ADJUSTMENT

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Insert the alignment tape RR5-1SD PAL. (tape top portion)</li> <li>• F-FWD mode</li> </ul>	<p>TP5/SV-108A(G-3)</p>  <p><math>T = 4.2 \pm 0.1 \text{ msec}</math> (Read the level at the center of jitter.)</p>	<p>RV16/SV-108A(B-4)</p> <p>TRIG: TP5/SV-108A(G-3)</p>

## 9-11. DRUM AFC BIAS ADJUSTMENT

[NOTE] When performing this adjustment, be sure not to put the tape portion into the top or the end.

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Short between TP4/SY-131A(E-2) and the chassis in the V0-8800P with a shorting clip.</li> <li>• Insert the alignment tape RR5-1SD PAL. (pulse &amp; bar (color) signal portion)</li> <li>• PLAY mode</li> </ul>	<p>TP2/SV-108A(G-3)</p> <p>PLAY mode</p> 	
<ul style="list-style-type: none"> <li>• Short between TP4/SY-131A(E-2) and the chassis in the V0-8800P with a shorting clip.</li> <li>• Connect a 100Ω-resistor between TP7/SV-108A(B-1) and TP10/SV-108A(G-1).</li> <li>• PLAY-PAUSE mode</li> </ul>	<p>TP2/SV-108A(G-3)</p> <p>PAUSE mode</p>  <p><math>T = 0 \pm 0.1 \mu \text{ sec}</math></p>	<p>RV13/SV-108A(D-1)</p> <p>TRIG: TP2/SV-108A(G-3)</p>



## 9-12. DRUM AFC TRANSIENT ADJUSTMENT

[NOTE] When performing this adjustment, be sure not to put the tape portion into the top or the end.

machine conditions for adjustment	specification	adjustments
<p>Step 1</p> <ul style="list-style-type: none"> <li>• Short between TP4/SV-131A(E-2) and the chassis in the V0-8800P with a shorting clip.</li> <li>• Connect a 100<math>\Omega</math>-resistor between TP7/SV-108A(B-1) and TP10/SV-108A(G-1).</li> <li>• Insert the alignment tape RR5-1SD PAL. (pulse &amp; bar (color) signal portion)</li> <li>• PLAY-PAUSE mode</li> </ul>	<p>TP17/SV-108A(E-1)</p> <p>DC level in the PAUSE mode = reference</p>	
<p>Step 2</p> <ul style="list-style-type: none"> <li>• Remove the shorting clips from TP7/SV-108A(B-1) and TP10/SV-108A(G-1).</li> <li>• PLAY mode</li> </ul>	<p>TP17/SV-108A(E-1)</p> <p>DC level in the PLAY mode = reference <math>\pm</math> 0.05V</p>	<p>RV12/SV-108A(D-1)</p>

## SECTION 10

### AUDIO SYSTEM ALIGNMENT

(Equipment Required)

- Dual Trace Oscilloscope.
- Frequency Counter.
- Audio Oscillator.
- AC Volt Meter/Noise Meter.
- Audio Attenuator.
- Blank Tape: KCS and KSP-S. (When performing adjustments, use KCS tape unless otherwise specifically indicated.)
- Alignment Tape: RR5-1SD PAL (Part No. 8-960-036-80) —SP tape—

TIME	VIDEO	AUDIO	NR	TIME CODE
5	Color bars	_____	OFF	_____
3	Gated sweep (B/W)	1kHz, 0dB		_____
3	Gated sweep (color)	10kHz, -10dB		_____
3	Pulse & bar (color) (MOD 10T and inverted 2T)	1kHz, -20dB		_____
		40Hz, -20dB		_____
		7kHz, -20dB		_____
		10kHz, -20dB		_____
		15kHz, -20dB		_____
3	Monoscope (color)	1kHz, -20dB	ON	_____
		15kHz, -20dB		_____
3	Pseudo color bars	_____	OFF	Time code

(Switch Setting)

- Front Panel
  - METER select sw : CH-1
  - AUDIO LEVEL (CH-1/CH-2) : MAN
- Connector Panel
  - DOLBY NR sw : OFF
  - AUDIO CAMERA/LINE sw : LINE
  - 60/-20/+4dB select sw : -60dB
  - CH-1/MIX/CH-2 select sw : CH-1

(Note)

Supply the color-bar signal to the VIDEO IN connector when performing the audio system alignment.  
 0dBu = 0.775Vrms

### 10-1. EE LEVEL ADJUSTMENT

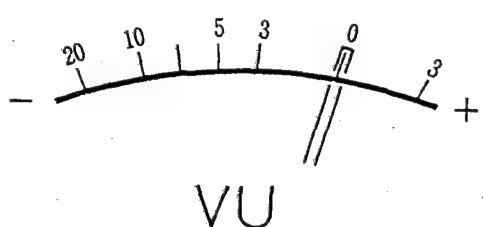
machine conditions for adjustment	specification	adjustment
<ul style="list-style-type: none"> <li>AUDIO IN: 1kHz, -60dBu</li> <li>EE mode</li> </ul>	CH-1: TP671/VA-76(M-5) CH-2: TP771/VA-76(L-5)  $-10.0 \pm 0.2\text{dBu}$	<ul style="list-style-type: none"> <li>CH-1 AUDIO LEVEL control (front panel)</li> <li>CH-2 AUDIO LEVEL control (front panel)</li> </ul>

NOTE: The position of the control volumes should not be moved till the Audio System Alignment is completed.

### 10-2. EE LINE OUT LEVEL CHECK

machine conditions for adjustment	specification	adjustment
<ul style="list-style-type: none"> <li>AUDIO IN: 1kHz, -60dBu</li> </ul>	AUDIO OUT connector (terminated by 600Ω)  $+4.0 \pm 0.5\text{dBm}$	

### 10-3. AUDIO LEVEL METER ADJUSTMENT

machine conditions for adjustment	specification	adjustment
<ul style="list-style-type: none"> <li>Put the unit upright and place the meter at horizontal level.</li> <li>AUDIO IN: 1kHz, -60dBu</li> </ul>	Audio level meter  The pointer reading should be zero. <Reference> When putting the unit upright and placing the meter at horizontal level, the pointer is located within the width of three pointers.	CH-1: ●RV831/VA-76(M-7) CH-2: ●RV832/VA-76(M-7)

#### 10-4. LIMITER LEVEL ADJUSTMENT

machine conditions for adjustment	specification	adjustment
<ul style="list-style-type: none"> <li>AUDIO IN: 1kHz, -30dBu</li> <li>BE mode</li> </ul>	AUDIO OUT connector (terminated by 600Ω)  $+12 \pm 0.5\text{dBm}$	CH-1: ⚙RV631/VA-76(K-5) CH-2: ⚙RV731/VA-76(K-5)

#### 10-5. PB FREQUENCY RESPONSE ADJUSTMENT

machine conditions for adjustment	specification	adjustment												
<ul style="list-style-type: none"><li>• Play back the audio frequency response check signal portion on the alignment tape RR5-1SD PAL.</li></ul>	<p>AUDIO OUT connector (terminated by 600Ω)</p> <table><tr><th>Freq.</th><th>Level</th></tr><tr><td>40Hz</td><td>0 ±3dB</td></tr><tr><td>1kHz</td><td>0dB(Ref.)</td></tr><tr><td>7kHz</td><td>0 ±0.5dB</td></tr><tr><td>10kHz</td><td>0 ± 0.1dB</td></tr><tr><td>15kHz</td><td>0 ± 0.1dB</td></tr></table>	Freq.	Level	40Hz	0 ±3dB	1kHz	0dB(Ref.)	7kHz	0 ±0.5dB	10kHz	0 ± 0.1dB	15kHz	0 ± 0.1dB	<ul style="list-style-type: none"><li>• 7kHz CH-1: ●RV602/VA-76(J-3) CH-2: ●RV702/VA-76(K-3)</li><li>• 10kHz through 15kHz CH-1: ●RV601/VA-76(K-2) CH-2: ●RV701/VA-76(K-2)</li></ul>
Freq.	Level													
40Hz	0 ±3dB													
1kHz	0dB(Ref.)													
7kHz	0 ±0.5dB													
10kHz	0 ± 0.1dB													
15kHz	0 ± 0.1dB													

#### 10-6. PB LEVEL ADJUSTMENT

machine conditions for adjustment	specification	adjustment
<ul style="list-style-type: none"> <li>Play back the 1kHz, 0dB signal portion on the alignment tape RR5-1SD PAL.</li> </ul>	CH-1: TP671/VA-76(M-5) CH-2: TP771/VA-76(L-5)  $-10.0 \pm 0.2\text{dBu}$	CH-1: ⚙RV604/VA-76(K-3) CH-2: ⚙RV704/VA-76(K-3)

# 10-7. PB LINE OUT LEVEL CHECK

machine conditions for adjustment	specification	adjustment
<ul style="list-style-type: none"> <li>• Play back the 1kHz, 0dB signal portion on the alignment tape RR5-1SD PAL.</li> </ul>	AUDIO OUT connector (terminated by 600Ω)  $+4.0 \pm 0.5\text{dBm}$	

# 10-8. FULL ERASE OSC FREQUENCY/LEVEL ADJUSTMENT

machine conditions for adjustment	specification	adjustment
<ul style="list-style-type: none"> <li>• Insert a KSP-S tape.</li> <li>• REC mode</li> </ul>	TP202/SY-131A(E-1) GND: E201/SY-131A(C-2)  Freq. : $71 \pm 0.3\text{kHz}$ Level: $245 \pm 45\text{mVrms}$  * Adjust so as to meet the both specifications.	<ul style="list-style-type: none"> <li>● CV201/SY-131A(B-2)</li> <li>● SL201 through 204/SY-131A</li> </ul> * When the specification is not satisfied, short or open SL204, 201, 202 and 203 respectively, and then adjust.

# 10-9. AUDIO ERASE OSC FREQUENCY/LEVEL ADJUSTMENT

machine conditions for adjustment	specification	adjustment
<ul style="list-style-type: none"> <li>• Insert a KSP-S tape.</li> <li>• DUB mode</li> </ul>	TP201/SY-131A(C-2)  Freq. : $71 \pm 1\text{kHz}$ Level: $245 \pm 45\text{mVrms}$  * Adjust so as to meet the both specifications.	● LV201/SY-131A(C-1)

# 10-10. REC BIAS ADJUSTMENT

machine conditions for adjustment	specification	adjustment
Step 1 • Insert a KSP-S tape.  • REC mode	CH-1: TP601/VA-76(J-2) GND: TP602/VA-76(J-2) CH-2: TP701/VA-76(K-2) GND: TP702/VA-76(K-2)  10.0 ± 0.5Vrms	CH-1: RV201/SY-131A(B-2) CH-2: RV202/SY-131A(B-2)
Step 2 • Insert a KCS tape.  • REC mode	8.0 ± 0.5Vrms	RV801/VA-76(K-7)

# 10-11. BIAS TRAP ADJUSTMENT

machine conditions for adjustment	specification	adjustment
• AUDIO IN: no signal  • REC mode	CH-1: TP603/VA-76(M-2) GND: E601/VA-76(M-2) CH-2: TP703/VA-76(L-2) GND: E701/VA-76(L-2)  Minimize the bias leak. (less than 0dBu)	CH-1: LV601/VA-76(L-2) CH-2: LV701/VA-76(L-2) • Adjust from the component side.

# 10-12. DUB BIAS TRAP ADJUSTMENT

machine conditions for adjustment	specification	adjustment
• AUDIO IN: no signal  • Insert a KSP-S tape.  • DUB mode	TP705/VA-76(K-3) E701/VA-76(L-2)  Minimize the bias leak. (less than -15dBu)	LV704/VA-76(K-2) • Adjust from the component side.

### 10-13. REC EQ FREQUENCY RESPONSE ADJUSTMENT

machine conditions for adjustment	specification	adjustment										
<ul style="list-style-type: none"><li>• AUDIO IN: 1kHz, 10kHz, 15kHz, 18kHz/-70dBu</li><li>• Insert a KSP-S tape.</li><li>• REC mode</li></ul>	<div>CH-1: TP604/VA-76(M-2) CH-2: TP704/VA-76(L-2)</div> <table><tr><th>Freq.</th><th>Level</th></tr><tr><td>1kHz</td><td>Ref.</td></tr><tr><td>10kHz</td><td>+6.0 ± 2dB</td></tr><tr><td>15kHz</td><td>+13.0 ± 3dB</td></tr><tr><td>18kHz</td><td>less than +16.0dB</td></tr></table>	Freq.	Level	1kHz	Ref.	10kHz	+6.0 ± 2dB	15kHz	+13.0 ± 3dB	18kHz	less than +16.0dB	<div>CH-1: ●RV605/VA-76(M-3) ●LV603/VA-76(M-3) CH-2: ●RV705/VA-76(L-3) ●LV703/VA-76(L-3)</div>
Freq.	Level											
1kHz	Ref.											
10kHz	+6.0 ± 2dB											
15kHz	+13.0 ± 3dB											
18kHz	less than +16.0dB											

### 10-14. CROSSTALK CANCEL ADJUSTMENT

machine conditions for adjustment	specification	adjustment
<ul style="list-style-type: none"> <li>AUDIO IN CH-1: 5kHz, +4dBu</li> <li>Insert a blank KSP-S tape.</li> <li>DUB mode</li> </ul>	CH-2 AUDIO OUT connector (terminated by 600 $\Omega$ )  Minimize the level. (less than -18dBu)	⌚RV708/VA-76(L-2)

# 10-15. OVERALL FREQUENCY RESPONSE ADJUSTMENT (SP TAPE/NR OFF)

machine conditions for adjustment	specification	adjustment																
<ul style="list-style-type: none"><li>• AUDIO IN: 40Hz, 90Hz, 1kHz, 3kHz, 7kHz, 10kHz, 15kHz/-80dBu</li><li>• Insert a KSP-S tape.</li><li>• Record each frequency for 15 seconds.</li><li>• Rewind the tape, and the play back the recorded portilon.</li></ul>	<p>AUDIO OUT connector (terminated by 600Ω)</p> <table><tr><th>Freq.</th><th>Level</th></tr><tr><td>40Hz</td><td>0 ± 3dB</td></tr><tr><td>90Hz</td><td>0 ± 3dB</td></tr><tr><td>1kHz</td><td>0dB(Ref.)</td></tr><tr><td>3kHz</td><td>0 ± 0.9dB</td></tr><tr><td>7kHz</td><td>0 ± 0.9dB</td></tr><tr><td>10kHz</td><td>0 ± 0.5dB</td></tr><tr><td>15kHz</td><td>0 ± 0.5dB</td></tr></table>	Freq.	Level	40Hz	0 ± 3dB	90Hz	0 ± 3dB	1kHz	0dB(Ref.)	3kHz	0 ± 0.9dB	7kHz	0 ± 0.9dB	10kHz	0 ± 0.5dB	15kHz	0 ± 0.5dB	
Freq.	Level																	
40Hz	0 ± 3dB																	
90Hz	0 ± 3dB																	
1kHz	0dB(Ref.)																	
3kHz	0 ± 0.9dB																	
7kHz	0 ± 0.9dB																	
10kHz	0 ± 0.5dB																	
15kHz	0 ± 0.5dB																	
	<ul style="list-style-type: none"><li>• When 7 through 15kHz level doesn't meet the specification.<ol style="list-style-type: none"><li>1. AUDIO IN: no signal</li><li>2. Connect the AC voltmeter as follows: CH-1: TP601/VA-76(J-2) GND: TP602/VA-76(J-2) CH-2: TP701/VA-76(K-2) GND: TP702/VA-76(K-2)</li><li>3. Insert a KSP-S tape.</li><li>4. REC mode.</li><li>5. Readjust the bias. bias voltage: 8 through 15mVrms NOTE: When high level frequency is lower than the specification, lower the bias voltage.</li><li>6. Check that the frequency response meets the specification after REC/PB modes.</li></ol></li></ul>	<p>CH-1: RV201/SY-131A(B-2)</p> <p>CH-2: RV202/SY-131A(B-2)</p>																



	<ul style="list-style-type: none"> <li>When 15kHz level doesn't meet the specification.</li> </ul> <ol style="list-style-type: none"> <li>Connect the AC voltmeter as follows: CH-1: TP604/VA-76(M-2) CH-2: TP704/VA-76(L-2)</li> <li>AUDIO IN CH-1 connector: 15kHz, -80dBu</li> <li>Insert a KSP-S tape.</li> <li>REC mode. Read the indication of the AC voltmeter. Adjust the 15kHz level to meet the specification.</li> <li>Check that the frequency response meets the specification after REC/PB modes.</li> </ol>	CH-1: RV605/VA-76(M-3) CH-2: RV705/VA-76(L-3)
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# 10-16. DUB OVERALL FREQUENCY RESPONSE ADJUSTMENT (SP TAPE/NR OFF)

machine conditions for adjustment	specification	adjustment																
<p>Step 1</p> <ul style="list-style-type: none"><li>• AUDIO IN CH-1: 40Hz, 90Hz, 1kHz, 3kHz, 7kHz, 10kHz, 15kHz/-80dBu</li><li>• Insert a KSP-S tape.</li><li>• Dub record each frequency respectively for 15 seconds.</li><li>• Rewind the tape, and then play back the dub recorded portion.</li></ul>	<p>CH-1 AUDIO OUT connector (terminated by 600Ω)</p> <table><tr><th>Freq.</th><th>Level</th></tr><tr><td>40Hz</td><td>0 ± 3dB</td></tr><tr><td>90Hz</td><td>0 ± 2dB</td></tr><tr><td>1kHz</td><td>0dB(Ref. )</td></tr><tr><td>3kHz</td><td>0 ± 0.9dB</td></tr><tr><td>7kHz</td><td>0 ± 0.9dB</td></tr><tr><td>10kHz</td><td>0 ± 1/2 dB</td></tr><tr><td>15kHz</td><td>0 ± 1/2 dB</td></tr></table>	Freq.	Level	40Hz	0 ± 3dB	90Hz	0 ± 2dB	1kHz	0dB(Ref. )	3kHz	0 ± 0.9dB	7kHz	0 ± 0.9dB	10kHz	0 ± 1/2 dB	15kHz	0 ± 1/2 dB	
Freq.	Level																	
40Hz	0 ± 3dB																	
90Hz	0 ± 2dB																	
1kHz	0dB(Ref. )																	
3kHz	0 ± 0.9dB																	
7kHz	0 ± 0.9dB																	
10kHz	0 ± 1/2 dB																	
15kHz	0 ± 1/2 dB																	
<p>Step 2</p> <ul style="list-style-type: none"><li>• When the specification in step 1 is not satisfied.</li></ul>	<p>TP601/VA-76(J-2) (GND: TP602/VA-76(J-2))</p> <p>Adjust so that the level in the REC mode is almost equal to that in the DUB mode.</p>	<p>RV205/SY-131A(B-2)</p>																

# 10-17. OVERALL FREQUENCY RESPONSE ADJUSTMENT (CONVENTIONAL TAPE)

machine conditions for adjustment	specification	adjustment																
<ul style="list-style-type: none"><li>• AUDIO IN: 40Hz, 90Hz, 1kHz, 3kHz, 7kHz, 10kHz, 15kHz/-80dBu</li><li>• Insert a KCS tape.</li><li>• Record each frequency respectively for 15 seconds.</li><li>• Rewind the tape, and then play back the recorded portion.</li></ul>	<p>AUDIO OUT connector (terminated by 600 Ω)</p> <table><tr><th>Freq.</th><th>Level</th></tr><tr><td>40Hz</td><td>0 ± 1dB</td></tr><tr><td>90Hz</td><td>0 ± 3dB</td></tr><tr><td>1kHz</td><td>0(Ref.)</td></tr><tr><td>3kHz</td><td>0 ± 1.5dB</td></tr><tr><td>7kHz</td><td>0 ± 1.5dB</td></tr><tr><td>10kHz</td><td>0 ± 1.5dB</td></tr><tr><td>15kHz</td><td>0 ± 1.5dB</td></tr></table>	Freq.	Level	40Hz	0 ± 1dB	90Hz	0 ± 3dB	1kHz	0(Ref.)	3kHz	0 ± 1.5dB	7kHz	0 ± 1.5dB	10kHz	0 ± 1.5dB	15kHz	0 ± 1.5dB	RV801/VA-76(K-7)
Freq.	Level																	
40Hz	0 ± 1dB																	
90Hz	0 ± 3dB																	
1kHz	0(Ref.)																	
3kHz	0 ± 1.5dB																	
7kHz	0 ± 1.5dB																	
10kHz	0 ± 1.5dB																	
15kHz	0 ± 1.5dB																	

NOTE: When the specification is not satisfied, perform section 10-10, REC BIAS ADJUSTMENT.  
The higher frequency level is lower than the specification, lower the bias voltage.

# 10-18. REC LEVEL ADJUSTMENT

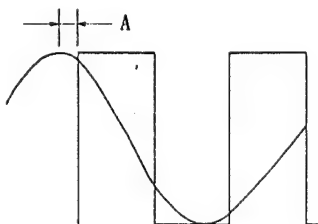
machine conditions for adjustment	specification	adjustment
<p>Step 1 (SP level)</p> <ul style="list-style-type: none"> <li>AUDIO IN: 1kHz, -60dBu</li> <li>Insert a KSP-S tape.</li> <li>REC mode→REW mode→PB mode</li> </ul>	<p>CH-1: TP604/VA-76(M-2) CH-2: TP704/VA-76(L-2)</p> <p>* Read the value in the REC mode. Level = AdBu (approx. +4dBu)</p> <p>CH-1: TP671/VA-76(M-5) CH-2: TP771/VA-76(L-5)</p> <p>* Play back the recorded portion, and read the difference between the value in TP671 or TP771 and ref. level (-10dBu). Difference from ref. level = BdB</p>	
<ul style="list-style-type: none"> <li>REC mode (again)</li> </ul>	<p>CH-1: TP604/VA-76(M-2) CH-2: TP704/VA-76(L-2)</p> <p>[Spec.] <math>C = A - B \pm 0.2\text{dBu}</math></p>	<p>CH-1: RV607/VA-76(M-3) CH-2: RV707/VA-76(L-3)</p>
<p>Step 2 (conventional level)</p> <ul style="list-style-type: none"> <li>AUDIO IN: 1kHz, -60dBu</li> <li>Insert a KCS tape.</li> <li>REC mode→REW mode→PB mode</li> </ul>	<p>CH-1: TP604/VA-76(M-2) CH-2: TP704/VA-76(L-2)</p> <p>* Read the value in the REC mode. Level = AdBu (approx. +2dBu)</p> <p>CH-1: TP671/VA-76(M-5) CH-2: TP771/VA-76(L-5)</p> <p>* Play back the recorded portion, and read the difference between the value in TP671 or TP771 and ref. level (-10dBu). Difference from ref. level = BdB</p>	
<ul style="list-style-type: none"> <li>REC mode (again)</li> </ul>	<p>CH-1: TP604/VA-76(M-2) CH-2: TP704/VA-76(L-2)</p> <p>[Spec.] <math>C = A - B \pm 0.2\text{dBu}</math></p>	<p>CH-1: RV606/VA-76(M-3) CH-2: RV706/VA-76(L-3)</p>

# 10-19. OVERALL FREQUENCY RESPONSE CHECK (SP TAPE/NR ON)

machine conditions for adjustment	specification	adjustment																
<ul style="list-style-type: none"><li>• AUDIO IN: 40Hz, 90Hz, 1kHz, 3kHz, 7kHz, 10kHz, 15kHz/-80dBu</li><li>• Insert a KSP-S tape.</li><li>• DOLBY NR SW: ON</li><li>• Record the each frequency for approximately 15 seconds.</li><li>• Rewind the tape, and then play back the recorded portion.</li></ul>	<div>AUDIO OUT connector (terminated by 600Ω)</div> <table><tr><th>Freq.</th><th>Level</th></tr><tr><td>40Hz</td><td>0 ± 3dB</td></tr><tr><td>90Hz</td><td>0 ± 3dB</td></tr><tr><td>1kHz</td><td>0dB(Ref.)</td></tr><tr><td>3kHz</td><td>0 ± 1.8dB</td></tr><tr><td>7kHz</td><td>0 ± 1.8dB</td></tr><tr><td>10kHz</td><td>0 ± 1.8dB</td></tr><tr><td>15kHz</td><td>0 ± 1.8dB</td></tr></table>	Freq.	Level	40Hz	0 ± 3dB	90Hz	0 ± 3dB	1kHz	0dB(Ref.)	3kHz	0 ± 1.8dB	7kHz	0 ± 1.8dB	10kHz	0 ± 1.8dB	15kHz	0 ± 1.8dB	
Freq.	Level																	
40Hz	0 ± 3dB																	
90Hz	0 ± 3dB																	
1kHz	0dB(Ref.)																	
3kHz	0 ± 1.8dB																	
7kHz	0 ± 1.8dB																	
10kHz	0 ± 1.8dB																	
15kHz	0 ± 1.8dB																	

NOTE: When the specification is not satisfied, perform section 10-15, OVERALL FREQUENCY RESPONSE ADJUSTMENT.

# 10-20. PILOT TONE REC ADJUSTMENT

machine conditions for adjustment	specification	adjustment
<ul style="list-style-type: none"> <li>AUDIO IN: no signal</li> <li>DOLBY NR sw: ON</li> <li>Insert a KSP-S tape.</li> <li>REC mode</li> </ul>	TP604/VA-76(M-2) TP704/VA-76(L-2)  -22 ± 1dBs	CH-1: ⌚RV872/VA-76(L-7) CH-2: ⌚RV873/VA-76(K-7)
	CH-1: TP872/VA-76(K-7) CH-2: TP873/VA-76(J-6)  A = 0 ± 2.7msec	⌚RV871/VA-76(L-7)

## SECTION 11

### VIDEO SYSTEM ALIGNMENT

[Equipment Required]

- Dual Trace Oscilloscope.
- Frequency Counter.
- Signal Generator/Sweep Generator
- DC Voltmeter
- Vectorscope
- Current Probe
- Blank Tapes: KCS and KSP-S tapes
- Alignment Tape: RR5-1SD PAL (Parts No. 8-960-036-80)—SP tape—

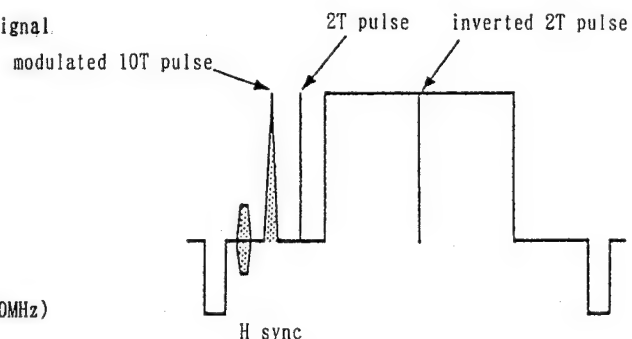
TIME	VIDEO	AUDIO	NR	TIME CODE
5	Color bars	_____	OFF	_____
3	Gated sweep (B/W)	1kHz, 0dB		_____
3	Gated sweep (color)	10kHz, -10dB		_____
3	Pulse & bar (color) (MOD 10T and inverted 2T)	1kHz, -20dB		_____
		40Hz, -20dB		_____
		7kHz, -20dB		_____
		10kHz, -20dB		_____
		15kHz, -20dB		_____
3	Monoscope (color)	1kHz, -20dB	ON	_____
		15kHz, -20dB		_____
3	Pseudo color bars	_____	OFF	Time code

• Alignment Tape: RR5-2SB PAL (Parts No. 8-960-020-62)—Conventional tape—

TIME	VIDEO	AUDIO	TIME CODE
5	Color bars	3kHz, 0dB	1kHz
5	R-F sweep	_____	_____
5	Monoscope	_____	_____
2.5	Modulated 20T pulse	1kHz, 0dB	_____
2.5	R-F 8MHz	10kHz, -10dB	_____

[Video Signals Required]

- Color Bar Signal : 75% color bar signal
- Pulse & bar signal :

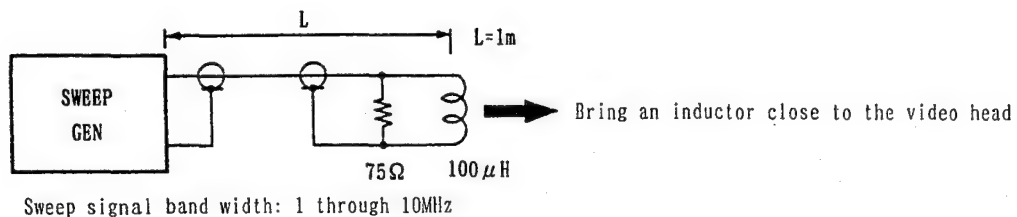


- RF Sweep signal : (1MHz through 10MHz)
- Gated Sweep Signal : (Up to 6MHz)

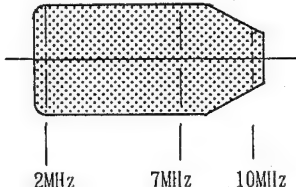
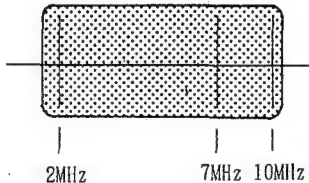
## 11-1. PLAYBACK SYSTEM ADJUSTMENT

### 11-1-1. PB RF Frequency Response Adjustment

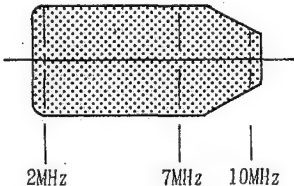
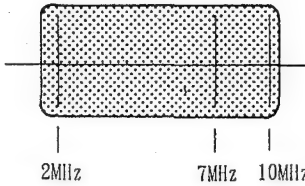
Stop the rotation of the head drum without a cassette tape, and L-couple sweep signal with the video head by using an inductor (approx.  $100\mu\text{H}$ ) in order to perform this adjustment.



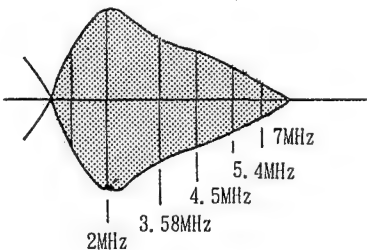
#### Step 1 CH-A PB amplifier adjustment

machine conditions for adjustment	specification	adjustments				
<ul style="list-style-type: none"><li>• Short between TP909/VA-76(J-7) and E901/VA-76(K-8) with a shorting clip.</li><li>• Couple the sweep signal with CH-A video head.</li><li>• Adjust coupling so that 2MHz level is approximately 50mVp-p at TP201/RP-38A(A-1).</li></ul>	<p>TP201/RP-38A(A-1)</p>  <table border="1"><tr><td>2MHz</td><td>7MHz</td></tr><tr><td>100% (REF)</td><td>100% ± 2%</td></tr></table>	2MHz	7MHz	100% (REF)	100% ± 2%	<p>RV205/RP-38A(A-1)</p> <p>TRIG: TRIG OUT of SWEEP GEN</p>
2MHz	7MHz					
100% (REF)	100% ± 2%					
<ul style="list-style-type: none"><li>• Turn RV15/VA-76(H-2) to its mechanical center position temporarily.</li><li>• Short between TP18/VA-76(G-2) and B6/VA-76(G-3) with a shorting clip.</li><li>• After the adjustment is completed, remove the shorting clip.</li></ul>	<p>TP15/VA-76(H-3)</p>  <table border="1"><tr><td>2MHz</td><td>7MHz</td></tr><tr><td>100% (REF)</td><td>110% ± 5%</td></tr></table>	2MHz	7MHz	100% (REF)	110% ± 5%	<p>RV17/VA-76(H-4)</p> <p>TRIG: TRIG OUT of SWEEP GEN</p>
2MHz	7MHz					
100% (REF)	110% ± 5%					

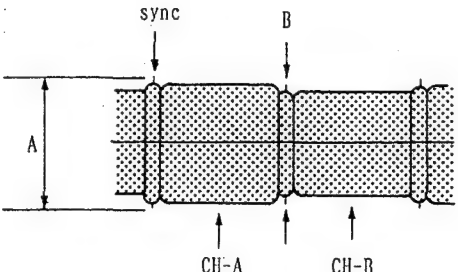
Step 2 CH-B PB amplifier adjustment

machine conditions for adjustment	specification	adjustments				
<ul style="list-style-type: none"><li>• Short between TP909/VA-76(J-7) and E901/VA-76(K-8) with a shorting clip.</li><li>• Couple the sweep signal with CH-B video head.</li><li>• Adjust coupling so that 2MHz level is approximately 50mVp-p at TP202/RP-38A(A-1).</li></ul>	<p>TP202/RP-38A(A-1)</p>  <table><tr><td>2MHz</td><td>7MHz</td></tr><tr><td>100% (REF)</td><td>100% ± 2%</td></tr></table>	2MHz	7MHz	100% (REF)	100% ± 2%	<p>RV206/RP-38A(A-2)</p> <p>TRIG: TRIG OUT of SWEEP GEN</p>
2MHz	7MHz					
100% (REF)	100% ± 2%					
<ul style="list-style-type: none"><li>• Turn RV16/VA-76(H-2) to its mechanical center position temporarily.</li><li>• Short between TP18/VA-76(G-2) and TP4/VA-76(H-2) with a shorting clip.</li><li>• After the adjustment is completed, remove the shorting clip.</li></ul>	<p>TP15/VA-76(H-3)</p>  <table><tr><td>2MHz</td><td>7MHz</td></tr><tr><td>100% (REF)</td><td>110% ± 5%</td></tr></table>	2MHz	7MHz	100% (REF)	110% ± 5%	<p>RV18/RP-76(G-3)</p> <p>TRIG: TRIG OUT of SWEEP GEN</p>
2MHz	7MHz					
100% (REF)	110% ± 5%					

### 11-1-3. PB RF Frequency Response Check (Middle)

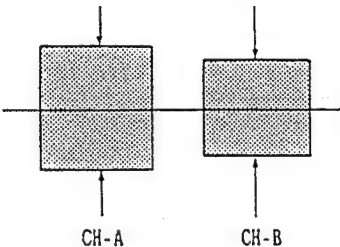
machine conditions for adjustment	specification	adjustments												
<ul style="list-style-type: none"><li>• Short between TP2/SV-108A(G-3) and GND with a shorting clip.</li><li>• Play back the RF sweep signal portion on the alignment tape RR5-2SB PAL.</li><li>• Adjust the TRAKING control volume so that the RF level at TP15/VA-76(H-3) is maximum.</li><li>• After the check is completed, remove the shoring clip.</li></ul>	<p>TP15/VA-76(H-3)</p>  <table><thead><tr><th>Frequency</th><th>Level</th></tr></thead><tbody><tr><td>2 MHz</td><td>100% (REF)</td></tr><tr><td>3.58 MHz</td><td>80 ± 10%</td></tr><tr><td>4.5 MHz</td><td>70 ± 10%</td></tr><tr><td>5.4 MHz</td><td>45 ± 10%</td></tr><tr><td>7 MHz</td><td>35 ± 5%</td></tr></tbody></table>	Frequency	Level	2 MHz	100% (REF)	3.58 MHz	80 ± 10%	4.5 MHz	70 ± 10%	5.4 MHz	45 ± 10%	7 MHz	35 ± 5%	
Frequency	Level													
2 MHz	100% (REF)													
3.58 MHz	80 ± 10%													
4.5 MHz	70 ± 10%													
5.4 MHz	45 ± 10%													
7 MHz	35 ± 5%													

### 11-1-4. PB Y RF Channel Balance/Level Adjustment

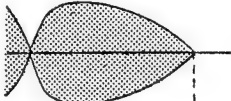

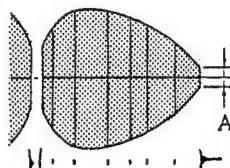
machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Turn RV30/VA-76(H-5) to the mechanical center position temporarily.</li> <li>• Play back the color-bar signal portion on the alignment tape RR5-1SD PAL.</li> <li>• Adjust the TRACKING control volume so that the RF level at TP11/VA-76(G-6) is maximum.</li> </ul>	<p>TP11/VA-76(G-6)</p>  <p><math>A = B = 0.3 \pm 0.02V_{p-p}</math></p>	<p>CH-A:            ●RV15/VA-76(H-2)            CH-B:            ●RV16/VA-76(H-2)</p> <p>TRIG: TP18/VA-76(G-2)</p>



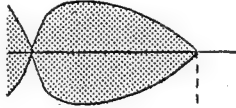

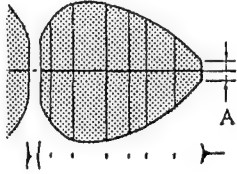
# 11-1-5. PB Chroma RF Channel Balance/Level Adjustment

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Play back the color-bar signal portion on the alignment tape RR5-1SD PAL.</li> <li>• Adjust the TRACKING control volume so that the RF level at TP1/CR-35(C-4) is maximum.</li> </ul>	<p>TP1/CR-35(C-4)</p>  <p>CH-A      CH-B</p> <p>CH-A Level = CH-B Level = <math>0.2 \pm 0.01V_{p-p}</math></p>	<p>CH-A:  RV20/VA-76(G-2)</p> <p>CH-B:  RV19/VA-76(G-3)</p> <p>TRIG: TP6/CR-35(D-4)</p>

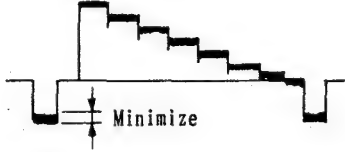
# 11-2. DROPOUT COMPENSATOR SENSITIVITY ADJUSTMENT

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Play back the RF sweep signal on the alignment tape RR5-2SB PAL.</li> <li>• TRACKING volume: center clicked position</li> <li>• Short between TP2/SV-108A(G-3) and E2/SV-108A(B-1) with a shorting clip.</li> <li>• After the adjustment is completed, remove the shorting clip.</li> </ul>	<p>CH-1: TP11/VA-76(G-6)</p>  <p>CH-2: TP19/VA-76(G-4)</p>  <p>oscilloscope: ADD mode</p>  <p>A = <math>30 \pm 4 mV_{p-p}</math></p>	<p>RV25/VA-76(H-7)</p> <p>TRIG: EXT  TP18/VA-76(G-2)</p>

### 11-3. GUARD BAND PULSE ADJUSTMENT

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Play back the RF sweep signal portion on the alignment tape RR5-2SB PAL.</li> <li>• TRACKING volume: center clicked position</li> <li>• Short between TP2/SV-108A(G-3) and E2/SV-108A(B-1) with a shorting clip.</li> <li>• After the adjustment is completed, remove the shorting clip.</li> </ul>	<p>CH-1: TP11/VA-76(G-6)</p>  <p>CH-2: TP19/VA-76(G-4)</p>  <p>oscilloscope: ADD mode</p>  <p><math>A = 30 \pm 4\text{mVp-p}</math></p>	<p>RV27/VA-76(G-7)</p> <p>TRIG: TP18/VA-76(G-2)</p>

### 11-4. CARRIER BALANCE ADJUSTMENT

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Play back the color-bar signal portion on the alignment tape RR5-2SB PAL.</li> </ul>	<p>TP301/VA-76(A-5)</p>  <p>Minimize</p>	<p>RV11/VA-76(G-6)</p>

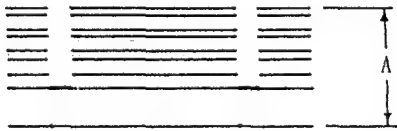
# 11-5. SP MODE DETECTOR CIRCUIT ADJUSTMENT

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Unsolder and open the SL4/VA-76.</li> <li>• Play back the color-bar signal portion on the alignment tape RR5-2SB PAL.</li> <li>• After the adjustment is completed, short SL4/VA-76.</li> </ul>	TP6/VA-76(G-8) <div> <p>(Reference) <math>A \geq 1.5V_{p-p}</math></p> </div>	RV1/VA-76(H-8)

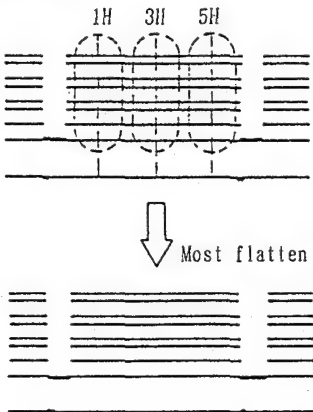
# 11-6. PB Y PHASE EQUALIZE PRE-ADJUSTMENT (SP and High modes)

machine conditions for adjustment	specification	adjustments
Step 1 <ul style="list-style-type: none"> <li>• Play back the pulse &amp; bar signal portion on the alignment tape RR5-1SD PAL.</li> </ul>	TP301/VA-76(A-5) <div> <p>A = B</p> </div>	RV12/VA-76(D-6)
Step 2 <ul style="list-style-type: none"> <li>• Play back the pulse &amp; bar signal portion on the alignment tape RR5-2SB PAL.</li> </ul>	<div> <p>C = D</p> </div>	RV13/VA-76(D-6)

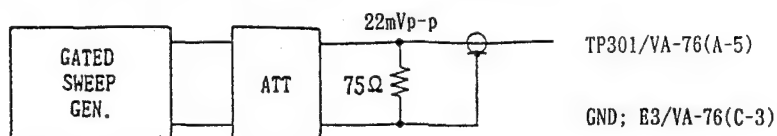
# 11-7. PB Y OUTPUT LEVEL PRE-ADJUSTMENT

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>Play back the color-bar signal portion on the alignment tape RR5-1SD PAL.</li> </ul>	TP301/VA-76(A-5)    $A = 0.4 \pm 0.02V_{p-p}$	RV26/VA-76(C-4)

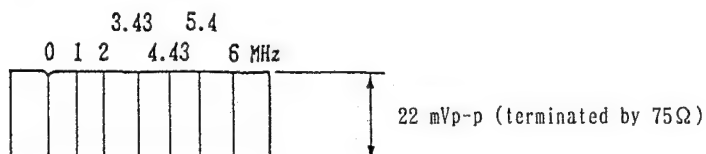
# 11-8. DROPOUT COMPENSATOR CIRCUIT DC BALANCE ADJUSTMENT

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>Play back the Pseudo CB for DOC adjustment signal on the alignment tape RR5-1SD PAL.</li> </ul>	TP301/VA-76(A-5)    Adjust RV24 and RV23 so that the waveform at 5H portion is flatten.	Level: RV24/VA-76(A-5) DC Bias: RV23/VA-76(A-4)  TRIG: TP18/VA-76(G-2)

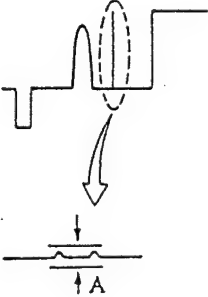
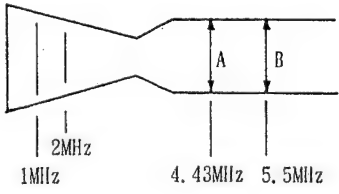
# 11-9. Y NOISE CANCELLER ADJUSTMENT




SWEEP SIGNAL LEVEL at TP301



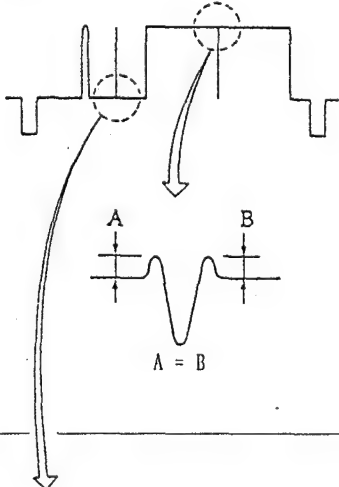
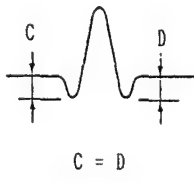
machine conditions for adjustment	specification	adjustments
<p>Step 1</p> <ul style="list-style-type: none"> <li>• Unsolder and open SL301/VA-76.</li> <li>• Short between TP909/VA-76(J-7) and E901/VA-76(K-8), and between TP402/VA-76(B-2) and E3/VA-76(C-3) respectively.</li> <li>• Connect the sweep signal as shown in the above.</li> <li>• Fully turn RV302/VA-76(B-5) in the clockwise direction from the soldering side.</li> </ul>	<p>TP302/VA-76(B-6)</p> <p>Minimize the amplitude of the cross point (at 2MHz).</p>	<p>RV301/VA-76(A-5)</p> <p>TRIG: TRIG OUT of SWEEP GEN</p>
<p>Step 2</p> <ul style="list-style-type: none"> <li>• Short between TP300/VA-76(A-5) and TP301/VA-76(A-5) with a shorting clip.</li> <li>• Play back the color-bar signal portion on the alignment tape RR5-1SD PAL.</li> </ul>	<p>TP302/VA-76(B-6)</p>	<p>RV302/VA-76(B-5)</p>

<p>Step 3</p> <ul style="list-style-type: none"> <li>• Play back the pulse &amp; bar signal portion on the alignment tape RR5-1SD PAL.</li> </ul>	<p>TP302/VA-76(B-6)</p>  <p>TP306/VA-76(C-6)</p> <p>Minimize the A level.</p>	<p>RV303/VA-76(B-6)</p>
<p>Step 4</p> <ul style="list-style-type: none"> <li>• POWER SW: OFF</li> <li>• Supply the gated sweep signal.</li> <li>• Turn on the POWER sw.</li> <li>• After the adjustment is completed, solder SL301/VA-76.</li> </ul>	<p>TP303/VA-76(C-8)</p>  <p>A = B</p>	<p>RV304/VA-76(C-6)</p>

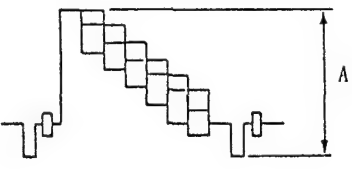
# 11-10. CHROMA NOISE CANCELLER ADJUSTMENT

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Play back the color-bar signal portion on the alignment tape RR5-1SD PAL.</li> </ul>	<p>TP405/VA-76(C-7)</p>  <p>Minimize the burst portion.</p>	<p>RV403/VA-76(C-7)</p> <p>TRIG: TP303/VA-76(C-8)</p>

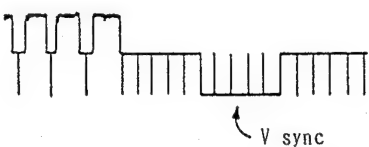
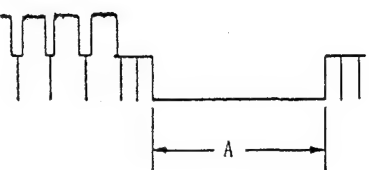
# 11-11. PB Y PHASE EQUALIZER ADJUSTMENT (SP and High modes)

machine conditions for adjustment	specification	adjustments
<p>Step 1</p> <ul style="list-style-type: none"> <li>• Play back the pulse &amp; bar signal portion on the alignment tape RR5-1SD PAL.</li> </ul>	<p>TP303/VA-76(C-8)</p> 	<p>RV12/VA-76(D-6)</p>
<p>Step 2</p> <ul style="list-style-type: none"> <li>• Play back the pulse &amp; bar signal portion on the alignment tape RR5-2SB PAL.</li> </ul>		<p>RV13/VA-76(D-6)</p>

# 11-12. Y OUTPUT LEVEL ADJUSTMENT

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Play back the color-bar signal portion on the alignment tape RR5-1SD PAL.</li> </ul>	<p>VIDEO OUT connector (terminated by 75Ω)</p>  <p><math>A = 1.0 \pm 0.02V_{p-p}</math></p>	<p>RV26/VA-76(C-4)</p>

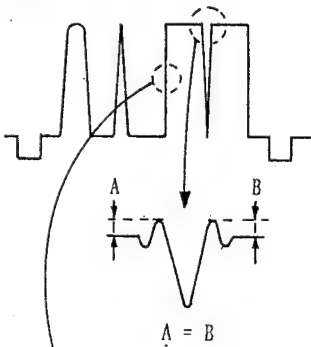
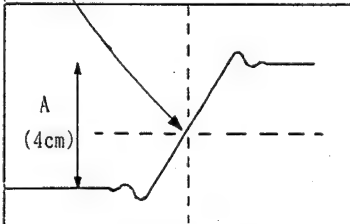
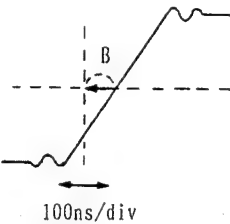
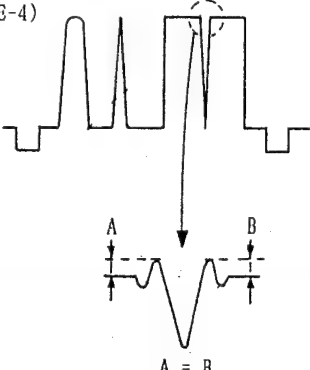
# 11-13. FALSE VD PULSE WIDTH CHECK

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Play back the color-bar signal portion on the alignment tape RR5-1SD PAL.</li> <li>• PAUSE mode</li> </ul>	<p>TP303/VA-76(C-8)</p> <p>(PLAY mode)</p>  <p>V sync</p> <p>(PAUSE mode)</p>  <p><math>A = 320 \pm \frac{8}{3} \mu sec</math></p>	<p>TRIG: TP18/VA-76(C-2)</p>



# 11-14. MODULATOR SYSTEM ADJUSTMENT

## 11-14-1. REC Y PHASE EQUALIZER ADJUSTMENT

machine conditions for adjustment	specification	adjustments
<b>Step 1</b> <ul style="list-style-type: none"> <li>• VIDEO IN: pulse &amp; bar signal</li> <li>• Insert a KSP-S tape, and then put the unit into the EE mode.</li> <li>• Turn RV9/CP-135(E-3) to the mechanical center position.</li> <li>• S1/CP-135(F-1): ON</li> </ul>	TP4/CP-135(E-4) 	Pre-adjustment RV8/CP-135(F-2)
<b>Step 2</b> <ul style="list-style-type: none"> <li>• S1/CP-135(F-1): OFF</li> </ul>	 100ns/div The rising point of bar should be center on the monitor of oscilloscope.	Oscilloscope: H, V-POSITION
<b>Step 3</b> <ul style="list-style-type: none"> <li>• S1/CP-135(F-2): ON</li> </ul>	Oscilloscope  100ns/div B = 0	RV9/CP-135(F-3)
<b>Step 4</b> <ul style="list-style-type: none"> <li>• Perform Step 1 again.</li> </ul>	TP4/CP-135(E-4) 	RV8/CP-135(F-2)

## 11-14-2. Sync Tip Carrier Frequency Adjustment (SP mode)

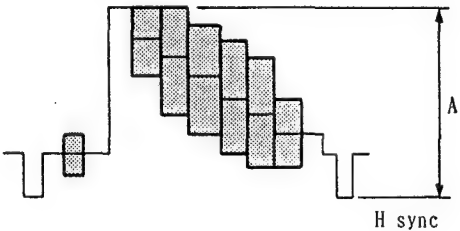
machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Short between TP21/VA-76(F-5) and E2/VA-76(F-5) with a shorting clip.</li>   <li>• VIDEO IN: color-bar signal</li>    <li>• Insert a KSP-S tape.</li>    <li>• EE mode.</li>    <li>• After the adjustment is completed, remove the shorting clip.</li> </ul>	<p>TP4/VA-76(H-2)</p>        $5.6 \pm 0.05\text{MHz}$	<p>RV1/VA-76(E-4)</p>

11-14-3. Sync Tip Carrier Frequency Adjustment  
(High-band mode)

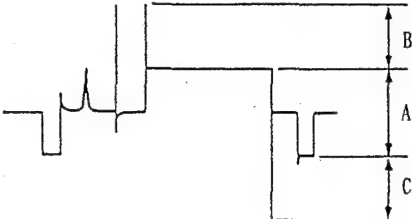
machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Short between TP21/VA-76(F-5) and E2/VA-76(F-5) with a shorting clip.</li> <li>• VIDEO IN: color-bar signal</li> <li>• Insert a KCS tape.</li> <li>• EE mode.</li> <li>• After the adjustment is completed, remove the adjustment.</li> </ul>	<p>TP4/VA-76(H-2)</p> <p><math>4.8 \pm 0.05\text{MHz}</math></p>	<p>RV2/VA-76(D-5)</p>



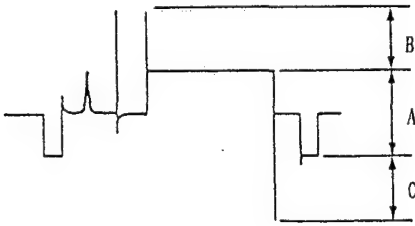
#### 11-14-4. FM Deviation Adjustment

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• VIDEO IN: color-bar signal</li> <li>• Insert a KSP-S tape.</li> <li>• REC mode.</li> <li>• Play back the self-recorded portion of the tape.</li> </ul>	<p>VIDEO OUT connector (terminated by 75Ω)</p>  <p><math>A = 1.0 \pm 0.1V_{p-p}</math></p> <p>Adjust in the REC mode and check in the PB mode.</p>	<p>RV6/VA-76(F-6)</p>

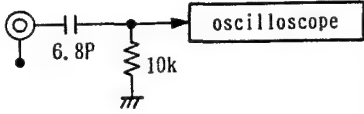
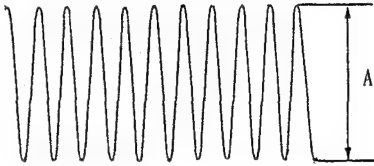
#### 11-14-5. White/Dark Clip Adjustment (SP mode)

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• VIDEO IN: pulse &amp; bar (with burst) signal</li> <li>• Insert a KSP-S tape.</li> <li>• EE mode.</li> </ul>	<p>TP22/VA-76(B-4)</p>  <p> <math>A = 100\% \text{ (reference)}</math>  <math>B = 130 \pm 5\%</math>  <math>C = 120 \pm 5\%</math> </p>	<p>Spec B: RV9/VA-76(D-5)</p> <p>Spec C: RV7/VA-76(B-6)</p> <p>TRIG: TP303/VA-76(C-8)</p>

# 11-14-6. White/Dark Clip Adjustment (High-band mode)

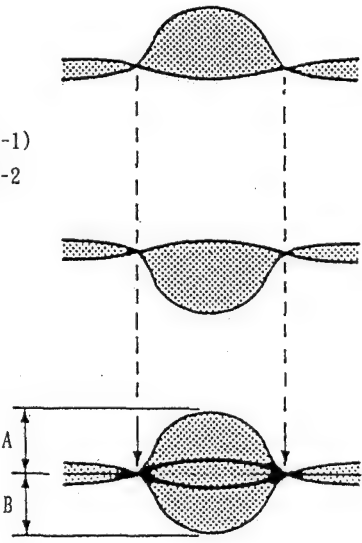
machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• VIDEO IN: pulse &amp; bar (with burst) signal</li> <li>• Insert a KCS tape.</li> <li>• EE mode.</li> </ul>	<p>TP22/VA-76(E-4)</p>  <p> <math>A = 100\%</math> (reference)  <math>B = 120 \pm \%</math>  <math>C = 100 \pm \%</math> </p>	<p>Spec B:  RV10/VA-76(E-5)  Spec C:  RV8/VA-76(D-6)</p> <p>TRIG: TP303/VA-76(C-8)</p>

# 11-14-7. REC HF Balance Adjustment

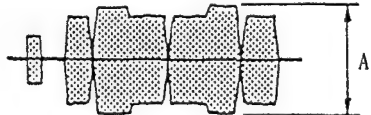
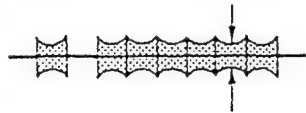
machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• VIDEO IN: color-bar signal</li> <li>• Insert a KSP-S tape.</li> <li>• EE mode.</li> <li>• Short between TP21/VA-76(F-5) and E2/VA-76(F-5) with a shorting clip.</li> <li>• Connect the high-pass filter to TP1. (Use 6.8pF capacitor and 10k<math>\Omega</math> resistor) as shown below.</li> </ul> <p>TP4/VA-76(H-2)</p>  <ul style="list-style-type: none"> <li>• Detect the output of the high-pass filter by the oscilloscope.</li> </ul>	<p>TP3/VA-76(D-2)</p>  <p>Maximize the A level.</p>	<p>RV3/VA-76(D-4)</p> <p>TRIG: INT</p>

# 11-15. REC Y/C SEPARATOR ADJUSTMENT

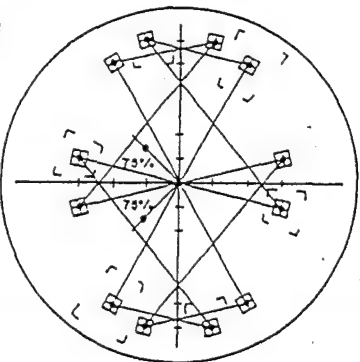
## 11-15-1. Chroma Correlator Balance Adjustment

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• VIDEO IN: gated sweep signal</li> <li>• Insert a KSP-S tape.</li> <li>• EE mode.</li> </ul>	<p>TP7/CP-135(C-1): C-1</p>  <p>TP7/CP-135(C-1) (Invert): CH-2</p> <p>(CHOP mode)</p> <p><math>A = B</math></p> <p>(Similarity figures upper waveform and lower waveform)</p>	<p>RV4/CP-135(D-2)</p> <p>TRIG: TP303/VA-76(C-8)</p>

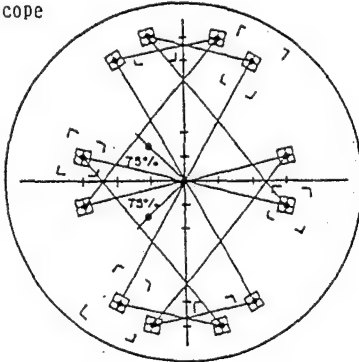

# 11-15-2. Process Level/Chroma Delay Adjustment

machine conditions for adjustment	specification	adjustments
<p>Step 1</p> <ul style="list-style-type: none"> <li>• VIDEO IN: color-bar signal</li> <li>• Insert a KSP-S tape.</li> <li>• EE mode.</li> <li>• Adjust the level to identify each other.</li> <li>• Range CH-1: 1V/m CH-2: 500mV/m</li> </ul>	<p>CH-1: TP10/CP-135(C-1) CH-2: TP6/CP-135(D-1)</p>  <p>Adjust the A level at CH-1 to A level at CH-2. (Level at TP10 = 2 × level at TP6)</p>	<p>RV3/CP-135(D-1)</p> <p>TRIG: TP303/VA-76(C-8)</p>
<p>Step 2</p> <ul style="list-style-type: none"> <li>• VIDEO IN: color-bar signal</li> <li>• EE mode.</li> <li>• Change the mode of oscilloscope to ADD mode.</li> </ul>	<p>CH-1: TP10/CP-135(C-1) CH-2: TP6/CP-135(D-1) (Invert) } ADD mode</p>  <p>Minimize this level.</p>	<p>RV2/CP-135(C-1) (ADD mode) RV3/CP-135(D-1) (CHOP mode)</p> <p>TRIG: TP303/VA-76(C-8)</p>

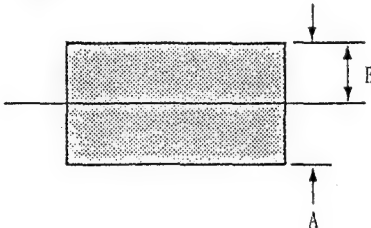
# 11-15-3. Slice Level Adjustment (1)

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• VIDEO IN: color-bar signal</li> <li>• Insert a KSP-S tape.</li> <li>• EE mode.</li> <li>• Before adjustment, adjust the phase control and gain control of vectroscope so that the burst spots are located at 75%-burst positions.</li> </ul>	<p>TP11/CP-135(D-1)</p> <p>Vectorscope</p>  <p>Each color spots should be in the ⊕-marked positions.</p>	<p>RV7/CP-135(E-1)</p>

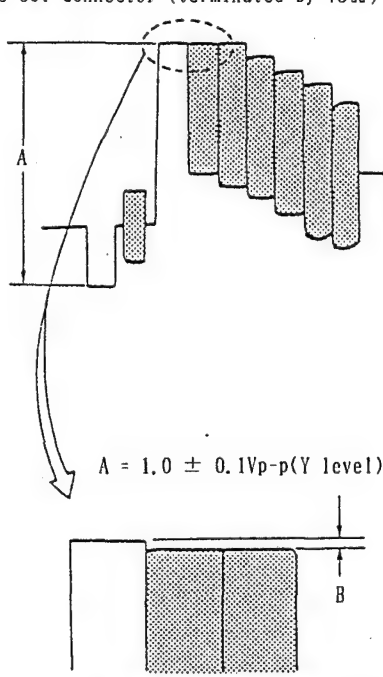
#### 11-15-4. Slice Level Adjustment (2)

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• VIDEO IN: color-bar signal</li> <li>• Insert a KSP-S tape.</li> <li>• EE mode.</li> <li>• Before adjustment, adjust the phase control and gain control of vectorscope so that the burst spots are located at 75%-burst positions.</li> </ul>	<p>TP8/CP-135(D-2)</p> <p>Vectorscope</p>  <p>Each color spots should be in the -marked positions.</p>	<p>RV5/CP-135(D-2)</p>

#### 11-15-5. Mix Level Adjustment

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• VIDEO IN: color-bar signal</li> <li>• Insert a KSP-S tape.</li> <li>• EE mode.</li> </ul>	<p>TP9/CP-135(E-2)</p>  <p>A = 100% (reference) B = 50 ± 2%</p>	<p>RV6/CP-135(E-1)</p> <p>TRIG: TP303/VA-76(C-8)</p>

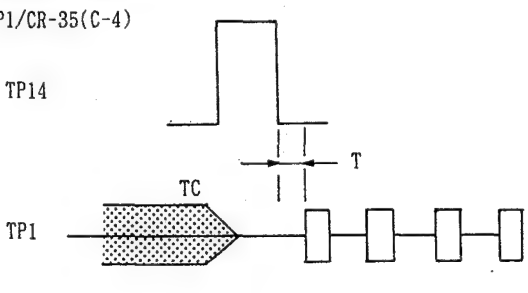
# 11-15-6. EE Y and Chroma Level Adjustment

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• VIDEO IN: color-bar signal</li> <li>• Insert a KSP-S tape.</li> <li>• EE mode.</li> </ul>	<p>VIDEO OUT connector (terminated by 75Ω)</p>  <p><math>A = 1.0 \pm 0.1V_{p-p} (Y \text{ level})</math></p> <p><math>B = 0 \pm 20mV \text{ (Chroma level)}</math></p>	<p>Y level:  RV404/VA-76(E-7)</p> <p>Chroma level:  RV405/VA-76(D-7)</p>

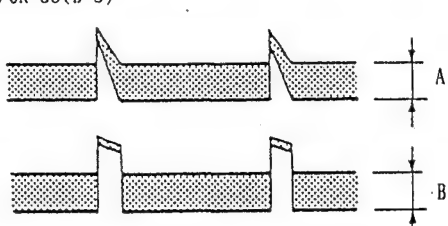


## 11-16. CHROMA SYSTEM ADJUSTMENT

### 11-16-1. T/C Mute Pulse Width Adjustment

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Play back the pseudo color-bar signal portion on the alignment tape RR5-1SD PAL.</li> </ul>	<p>TP14/VA-76(B-1) TP1/CR-35(C-4)</p>  <p><math>T = 30 \pm 10 \mu\text{sec}</math></p> <p>{ The position between V BLK falling edge and starting point of TP1 burst.</p>	<p>RV401/VA-76(A-1)</p> <p>TRIG: TP18/VA-76(G-2)</p>

### 11-16-2. REC 4.43MHz REF Adjustment

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• VIDEO IN: color-bar signal</li> <li>• EE mode</li> </ul>	<p>TP10/CR-35(B-3)</p>  <p><math>A = B</math></p>	<p>T1/CR-35(A-2)</p>


### 11-16-3. PB REF OSC Adjustment

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Play back the color-bar signal portion on the alignment tape RR5-1SD PAL.</li> </ul>	<p>TP7/CR-35(D-2)</p> <p><math>4,433,619 \pm 5\text{Hz}</math></p>	<p>RV5/CR-35(A-3)</p>

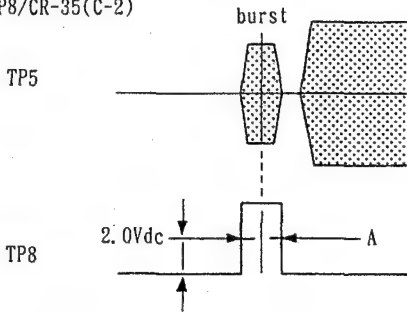
#### 11-16-4. VCO DC Level Adjustment

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Play back the color-bar signal portion on the alignment tape RR5-1SD PAL.</li> </ul>	TP10/CR-35(B-10)  DC Level = $7.5 \pm 0.1\text{Vdc}$	⌚RV12/CR-35(C-2)

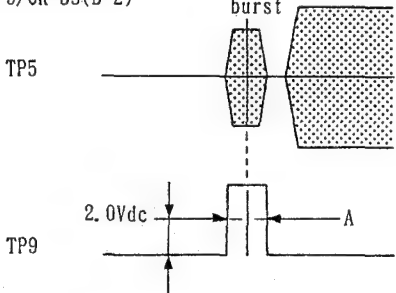
#### 11-16-5. 5.3MHz OSC Level Adjustment

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Play back the color-bar signal portion on the alignment tape RR5-1SD PAL.</li> </ul>	TP4/CR-35(D-2)    $A = 0.5 \pm 0.05\text{Vp-p}$	⌚RV13/CR-35(B-2)

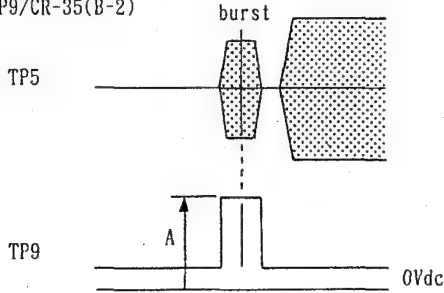
#### 11-16-6. ACC Burst Gate Width/Phase Adjustment

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Play back the color-bar signal portion on the alignment tape RR5-1SD PAL.</li> </ul>	TP5/CR-35(B-4) TP8/CR-35(C-2)    Width: $A = 2.5 \pm 0.1 \mu\text{sec}$ Phase: Adjust the center of both waves.	Pulse width: ⌚RV9/CR-35(B-2) Phase: ⌚RV10/CR-35(B-1)

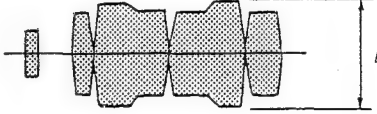
# 11-16-7. APC Burst Gate Width/Phase Adjustment

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>Play back the color-bar signal portion on the alignment tape RR5-1SD PAL.</li> </ul>	<p>TP5/CR-35(B-4) TP9/CR-35(B-2)</p>  <p>Width: <math>A = 2.5 \pm 0.1 \mu\text{sec}</math> Phase: Adjust the center of both waves.</p>	<p>Phase: RV6/CR-35(B-1) Pulse width: RV7/CR-35(B-2)</p>

# 11-16-8. APC Burst Gate Level Adjustment

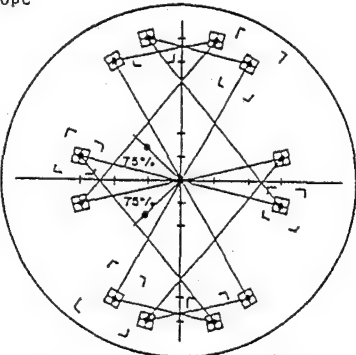
machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>Play back the color-bar signal portion on the alignment tape RR5-1SD PAL.</li> </ul>	<p>TP5/CR-35(B-4) TP9/CR-35(B-2)</p>  <p><math>A = 3.5 \pm 0.1\text{Vdc}</math></p>	<p>RV8/CR-35(B-1)</p>

# 11-16-9. PB ACC Level Adjustment (SP mode)

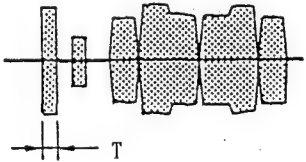
machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>Play back the color-bar signal portion on the alignment tape RR5-1SD PAL.</li> </ul>	<p>TP3/CR-35(D-3)</p>  <p><math>A = 0.8 \pm 0.1\text{Vp-p}</math></p>	<p>RV3/CR-35(B-3)  TRIG: TP8/CR-35(C-2)</p>



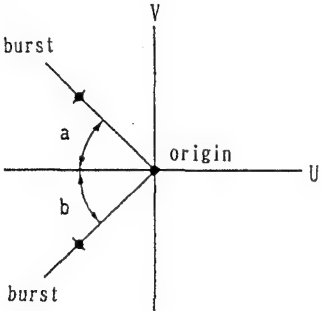
# 11-16-12. Y/C Mix Adjustment

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Play back the color-bar signal portion on the alignment tape RR5-1SD PAL.</li> </ul>	<p>VIDEO OUT connector (terminated by 75<math>\Omega</math>)</p> <p>Vectorscope</p>  <p>R should be located in the <math>\oplus</math>.</p>	<p>RV402/VA-76(D-7)</p>

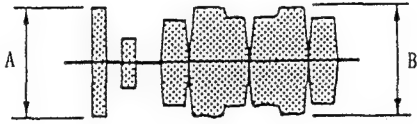
### 11-16-13. Pilot Burst Adjustment

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Insert a KSP-S tape.</li> <li>• VIDEO IN: color-bar signal</li> <li>• EE mode</li> </ul>	<p>TP3/CR-35(D-3)</p>  <p><math>T: 3.5 \pm 0.1 \mu\text{sec}</math></p>	<p>RV4/CR-35(E-4)</p> <p>TRIG: TP8/CR-35(C-2)</p>

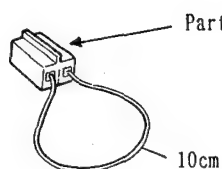
### 11-16-14. Pilot Burst Phase Adjustment

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Insert a KSP-S tape.</li> <li>• VIDEO IN: color-bar signal</li> <li>• EE mode</li> </ul>	<p>TP3/CR-35(D-3)</p>  <p><math>a = b = 45^\circ</math></p>	<p>LV1/CR-35(E-2)</p>

### 11-16-15. Pilot Burst Level Adjustment

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Insert a KSP-S tape.</li> <li>• VIDEO IN: color-bar signal</li> <li>• EE mode</li> </ul>	<p>TP3/CR-35(D-3)</p>  <p><math>A = B</math></p>	<p>RV2/CR-35(E-3)</p> <p>TRIG: TP8/CR-35(C-2)</p>

# 11-17. REC CURRENT FREQUENCY RESPONSE ADJUSTMENT



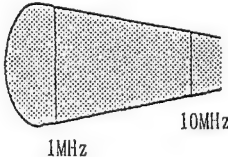
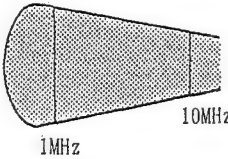
Part No.: 1-509-983-00

HOUSING, IL CONNECTOR 2P

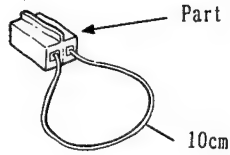
NOTE: Cut the projection  
with a cutter.

10cm

<Junction Connector>

machine conditions for adjustment	specification	adjustments						
<p>• Connect the junction connector to COR201/RP-38A(B-1) and COR202 /RP-38A(B-2).</p> <p>Step 1</p> <p>• Short between TP207/RP-38A(D-2) and E201/RP-38A(D-1) with a shorting clip.</p> <p>• Connect the RF sweep signal to TP208/RP-38A(D-2).</p> <p>• Connect the current prove to COR201/RP-38A(B-1), and adjust SG so that 1MHz level is 60mAp-p.</p> <p>• REC mode</p>	<div></div> <table><tr><th>Freq.</th><th>Level</th></tr><tr><td>1MHz</td><td>100%</td></tr><tr><td>10MHz</td><td>80 ± 5%</td></tr></table> <p>Adjust RV203 so that the 7MHz level meet the specification.</p> <p>Pay attention to change the 1MHz level when adjust RV203.</p>	Freq.	Level	1MHz	100%	10MHz	80 ± 5%	<p>RV203/RP-38A(C-1)</p>
Freq.	Level							
1MHz	100%							
10MHz	80 ± 5%							
<p>Step 2</p> <p>• Connect the current prove to COR201/RP-38A(B-1), and adjust SG so that 1MHz level is 60mAp-p.</p> <p>• After the adjustment is completed remove the shorting clips.</p>	<div></div> <table><tr><th>Freq.</th><th>Level</th></tr><tr><td>1MHz</td><td>100%</td></tr><tr><td>10MHz</td><td>80 ± 5%</td></tr></table>	Freq.	Level	1MHz	100%	10MHz	80 ± 5%	<p>RV204/RP-38A(C-2)</p> <p>TRIG: TRIG OUT of SWEEP GEN</p>
Freq.	Level							
1MHz	100%							
10MHz	80 ± 5%							

# 11-18. REC CURRENT LEVEL ADJUSTMENT



Part No.: 1-509-983-00

HOUSING, IL CONNECTOR 2P

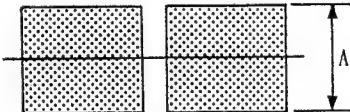
NOTE: Cut the projection  
with a cutter.

<Junction Connector>

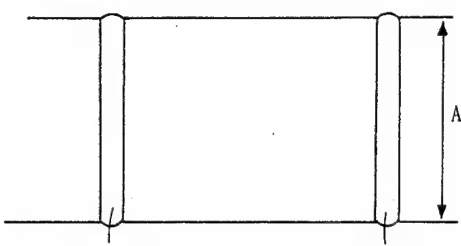
machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• VIDEO IN: color-bar signal</li> <li>• Short between TP2/CR-35(C-4) and E2/CR-35(D-4) with a shorting clip.</li> </ul>		
<p>SP mode adj:</p> <ul style="list-style-type: none"> <li>• Insert a KSP-S tape.</li> <li>• Connect the junction connector to COR201/RP-38A(B-1), and then connect the current prove to it.</li> <li>• REC mode</li> </ul>	<p><math>A = 55 \pm 5mAp-p</math></p>	RV201/RP-38A(D-2)
<p>High-band mode adj:</p> <ul style="list-style-type: none"> <li>• Insert a KCS tape.</li> <li>• Connect the junction connector to COR201/RP-38A(B-1) and then connect the current prove to it.</li> <li>• REC mode</li> </ul>	<p><math>A = 67 \pm 8mAp-p</math></p>	RV4/VA-76(D-3)



# 11-19. CHROMA REC CURRENT LEVEL ADJUSTMENT

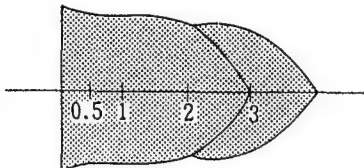
machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• VIDEO IN: color-bar signal</li> <li>• Insert a KSP-S tape.</li> <li>• Short between E201/RP-38A(D-1) and TP207/RP-38A(D-2) with a shorting clip.</li> <li>• Connect the junction connector of COR201/RP-38A(B-1) and then connect the current probe to it.</li> <li>• REC mode</li> </ul>	<p>COR201/RP-38A(B-1)</p>  <p><math>A = 15 \pm 5 \text{mA}_{p-p}</math></p>	<p>RV202/RP-38A(D-1)</p>
<ul style="list-style-type: none"> <li>• Disconnect the shorting clip.</li> <li>• Play back the self-recorded portion.</li> </ul>	<p>TP1/CR-35(C-4)</p> <p>Chroma level = <math>220 \pm 20 \text{mV}_{p-p}</math></p>	

# 11-20. OVERALL Y RF LEVEL ADJUSTMENT

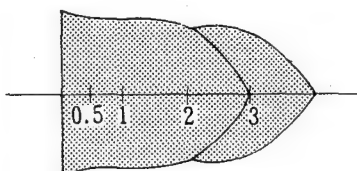
machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• VIDEO IN: color-bar signal</li> <li>• Insert a KSP-S tape.</li> <li>• REC mode</li> <li>• Play back the self-recorded portion.</li> </ul>	<p>TP11/VA-76(G-6)</p>  <p><math>A = 300 \pm 20 \text{mV}_{p-p}</math></p>	<p>RV30/VA-76(H-5)</p> <p>TRIG: TP18/VA-76(G-2)</p>

# 11-21. OVERALL Y FREQUENCY RESPONSE ADJUSTMENT

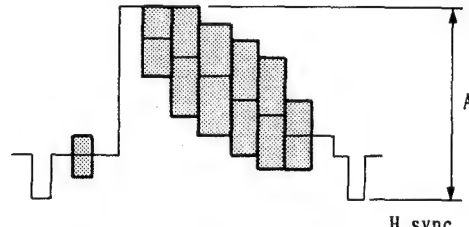
## 11-21-1. Overall Y Frequency Response Adjustment (SP mode)

machine conditions for adjustment	specification	adjustments										
<ul style="list-style-type: none"><li>• Insert a KSP-S tape.</li><li>• VIDEO IN: gated sweep with burst signal</li><li>• REC/PB mode</li></ul>	<p>VIDEO OUT connector (terminated by 75Ω)</p>  <table><tr><th>Freq.</th><th>Level</th></tr><tr><td>0.5MHz</td><td>100%(REF)</td></tr><tr><td>1MHz</td><td>100 ± 5%</td></tr><tr><td>2MHz</td><td>100 ± 5%</td></tr><tr><td>3MHz</td><td>90 ± 10%</td></tr></table> <p>Read 2 to 3MHz level at moire peak.</p>	Freq.	Level	0.5MHz	100%(REF)	1MHz	100 ± 5%	2MHz	100 ± 5%	3MHz	90 ± 10%	<p>●CV1/VA-76(E-6)</p>
Freq.	Level											
0.5MHz	100%(REF)											
1MHz	100 ± 5%											
2MHz	100 ± 5%											
3MHz	90 ± 10%											

# 11-21-2. Overall Y Frequency Response Check (Conventional mode)

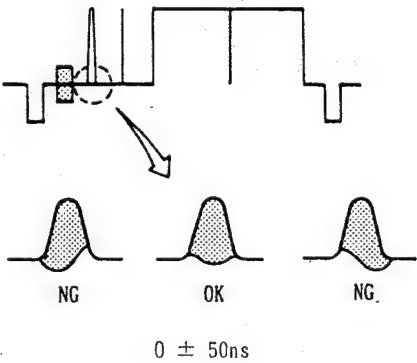
machine conditions for adjustment	specification	adjustments										
<ul style="list-style-type: none"><li>• Insert a KCS tape.</li><li>• VIDEO IN: gated sweep with burst signal</li><li>• REC/PB mode</li></ul>	<p>VIDEO OUT connector (terminated by 75Ω)</p>  <table><tr><th>Freq.</th><th>Level</th></tr><tr><td>0.5MHz</td><td>100%(REF)</td></tr><tr><td>1MHz</td><td>105 ± 6%</td></tr><tr><td>2MHz</td><td>110 ± 12%</td></tr><tr><td>3MHz</td><td>100 ± 10%</td></tr></table>	Freq.	Level	0.5MHz	100%(REF)	1MHz	105 ± 6%	2MHz	110 ± 12%	3MHz	100 ± 10%	
Freq.	Level											
0.5MHz	100%(REF)											
1MHz	105 ± 6%											
2MHz	110 ± 12%											
3MHz	100 ± 10%											
	Read 2 to 3MHz level at moire peak.											

# 11-22. CONF1 MODE Y LEVEL ADJUSTMENT

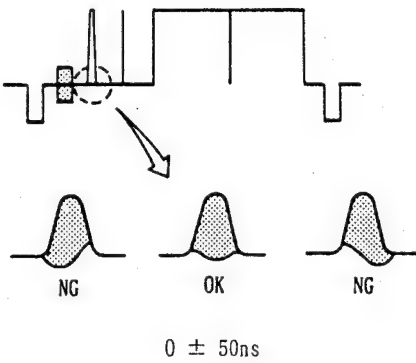
machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• VIDEO IN: color bar signal</li> <li>• Insert a KSP-S tape.</li> <li>• REC mode</li> </ul>	<p>TP502/VA-76(D-7)</p>  <p>A = 2.0 ± 0.1Vp-p</p>	<p>RV501/VA-76(B-3)</p>

## 11-23. PB Y/C DELAY ADJUSTMENT

### 11-23-1. PB Y/C Delay Adjustment (SP mode)

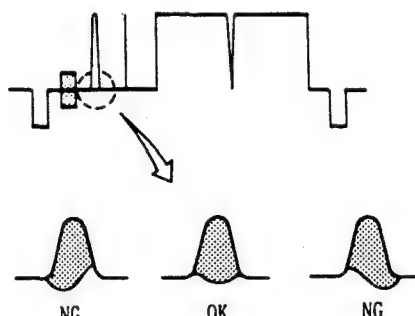
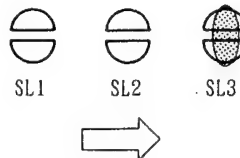
machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Play back the pulse &amp; bar (color) signal portion on the alignment tape RR5-1SD PAL.</li> </ul>	<p>VIDEO OUT connector (terminated by 75Ω)</p>  <p>NG OK NG</p> <p><math>0 \pm 50\text{ns}</math></p>	<p>RV21/VA-76(F-2)</p>

### 11-23-2. PB Y/C Delay Adjustment (Conventional mode)

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• Play back the mod 20T pulse signal portion on the alignment tape RR5-2SB PAL.</li> </ul>	<p>VIDEO OUT connector (terminated by 75Ω)</p>  <p>NG OK NG</p> <p><math>0 \pm 50\text{ns}</math></p>	<p>RV22/VA-76(F-3)</p>

## 11-24. REC Y/C DELAY ADJUSTMENT

### 11-24-1. REC Y/C Delay Adjustment (SP mode)

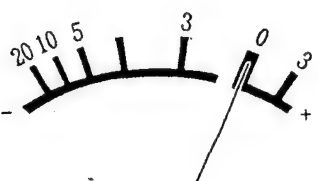
machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• VIDEO IN: mod IOT signal</li> <li>• Insert a KSP-S tape.</li> <li>• Play back the self-recorded portion.</li> </ul>	<p>VIDEO OUT connector (terminated by 75Ω)</p>  <p>0 ± 50ns</p>	<p>● SL1 through SL3/VA-76</p>  <p>TRIG: INT</p>

When not to meet the specification:

Unsolder SL1 through SL3 on the VA-76 board with a soldering iron.

Short moving one by one in the direction of the arrow, and check to meet the specification.

## 11-25. VIDEO METER ADJUSTMENT

machine conditions for adjustment	specification	adjustments
<ul style="list-style-type: none"> <li>• METER SELECT sw: VIDEO</li> <li>• VIDEO IN: color-bar signal</li> <li>• Insert a KSP-S tape.</li> <li>• EE mode</li> </ul>	<p>VIDEO meter</p>  <p>Adjust so that the pointer is on the leftmost edge of "0".</p>	<p>● RV5/VA-76(F-G)</p>

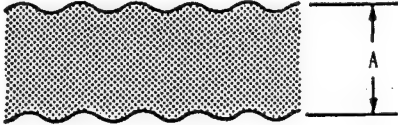
## SECTION 12

### TIME CODE SYSTEM ALIGNMENT

[Equipment Required]

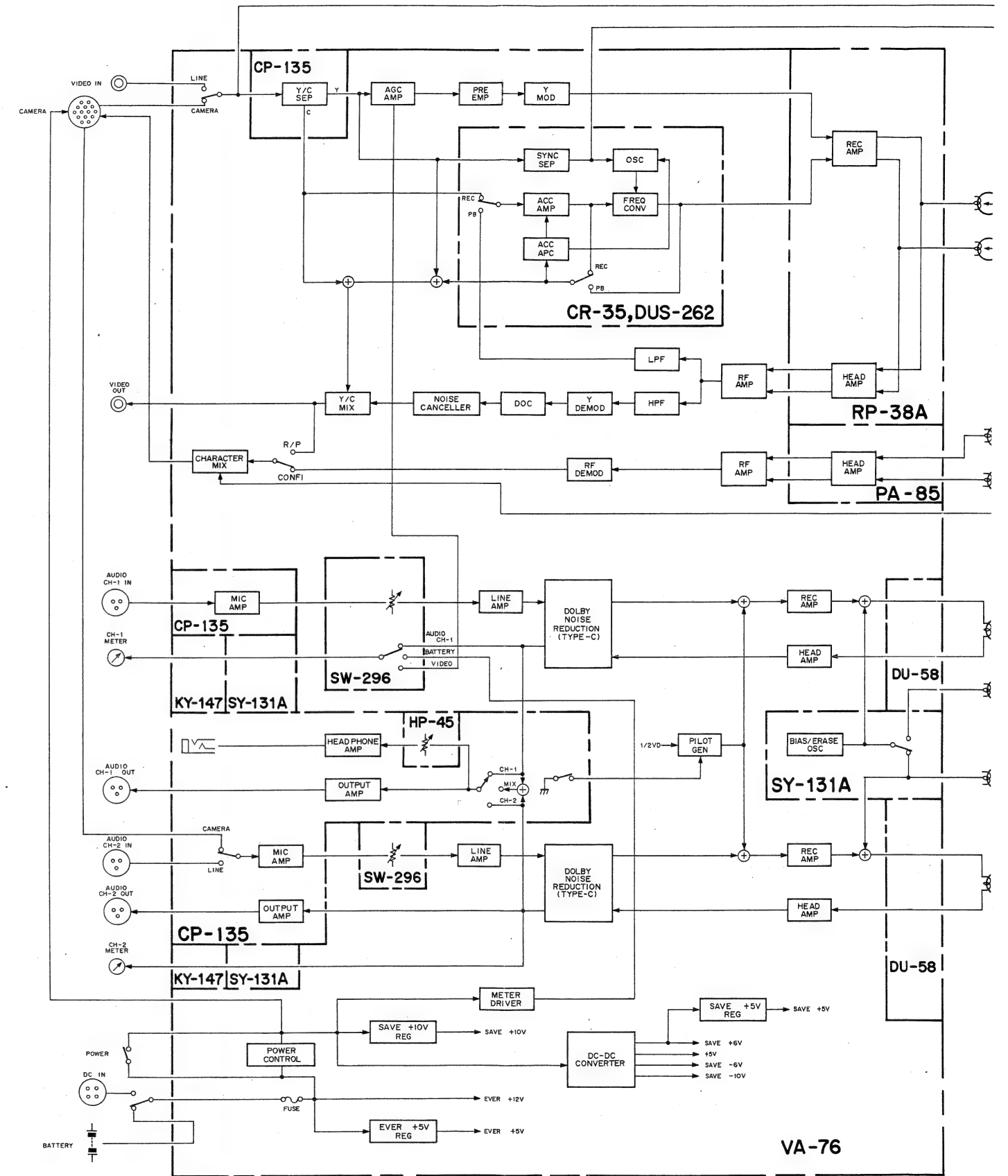
- oscilloscope
- square wave generator (1.2kHz, 1Vp-p)
- audio noise meter (rms range, DIN/AUDIO or JIS A mode)

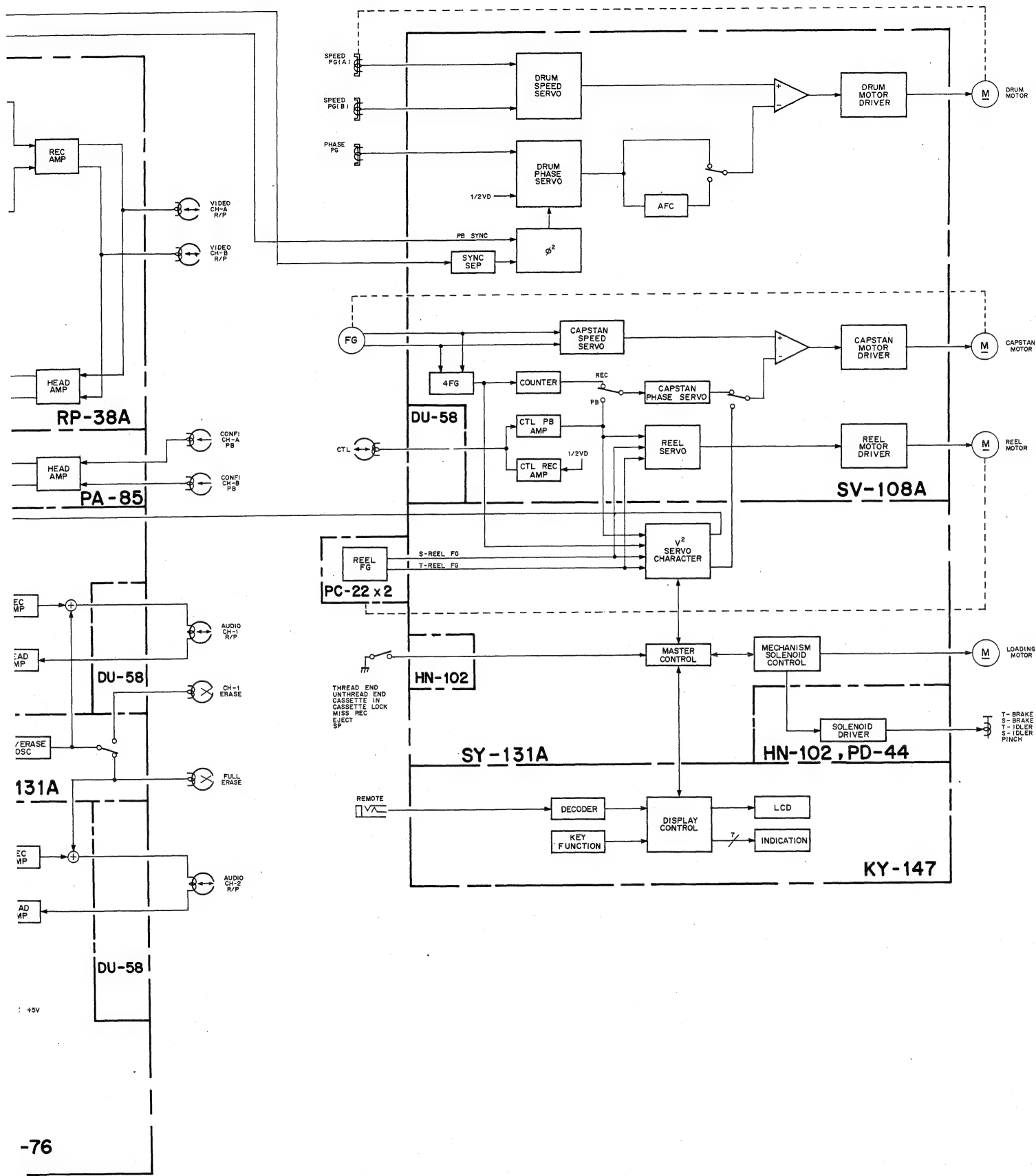
#### 12-1. TIME CODE REC CURRENT ADJUSTMENT

machine conditions for adjustment	specification	adjustment
<p>Step 1</p> <ul style="list-style-type: none"> <li>• Play back the pseudo-color-bar (time code) signal portion on the alignment tape, RR5-1SD PAL.</li> </ul>	<p>pin 6 of CN11 (TP203)/SY-131A(F-4)</p>  <p>Check the A level.</p>	
<p>Step 2</p> <ul style="list-style-type: none"> <li>• Insert a BKU-706 into the VO-8800P.</li> <li>• TC IN connector/BKU-706: 1.2kHz, 1Vp-p square wave signal</li> <li>• Insert a KSP-S tape.</li> <li>• Put the unit into the REC and PB modes repeatedly, and adjust.</li> </ul>	<p>pin 6 of CN11 (TP203)/SY-131A(F-4)</p> <p>A level in step 1 <math>\pm 1\%</math> mV</p>	<p>RV204/SY-131A(D-4)</p>

SECTION 13  
BLOCK DIAGRAM

OVERALL

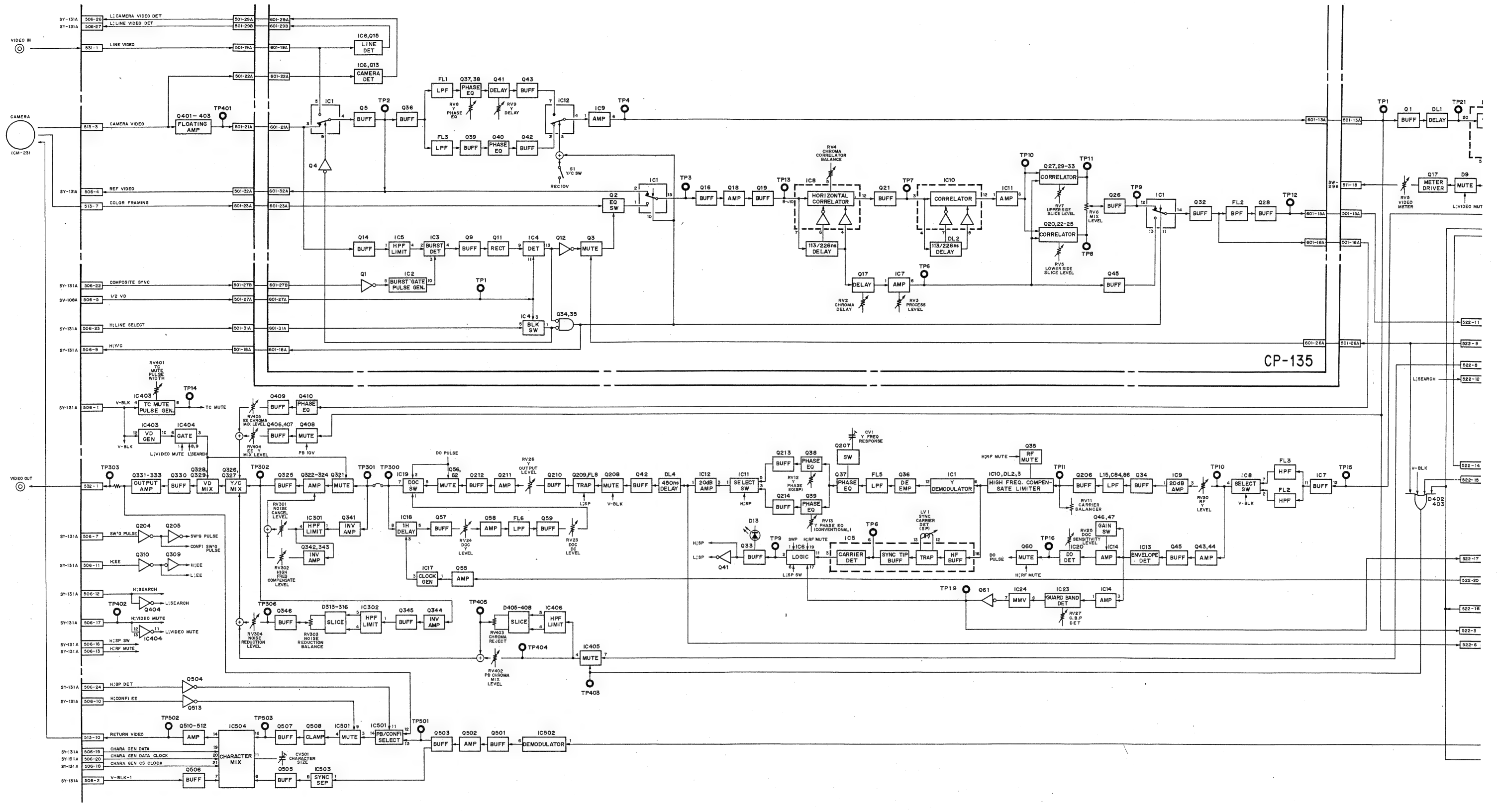


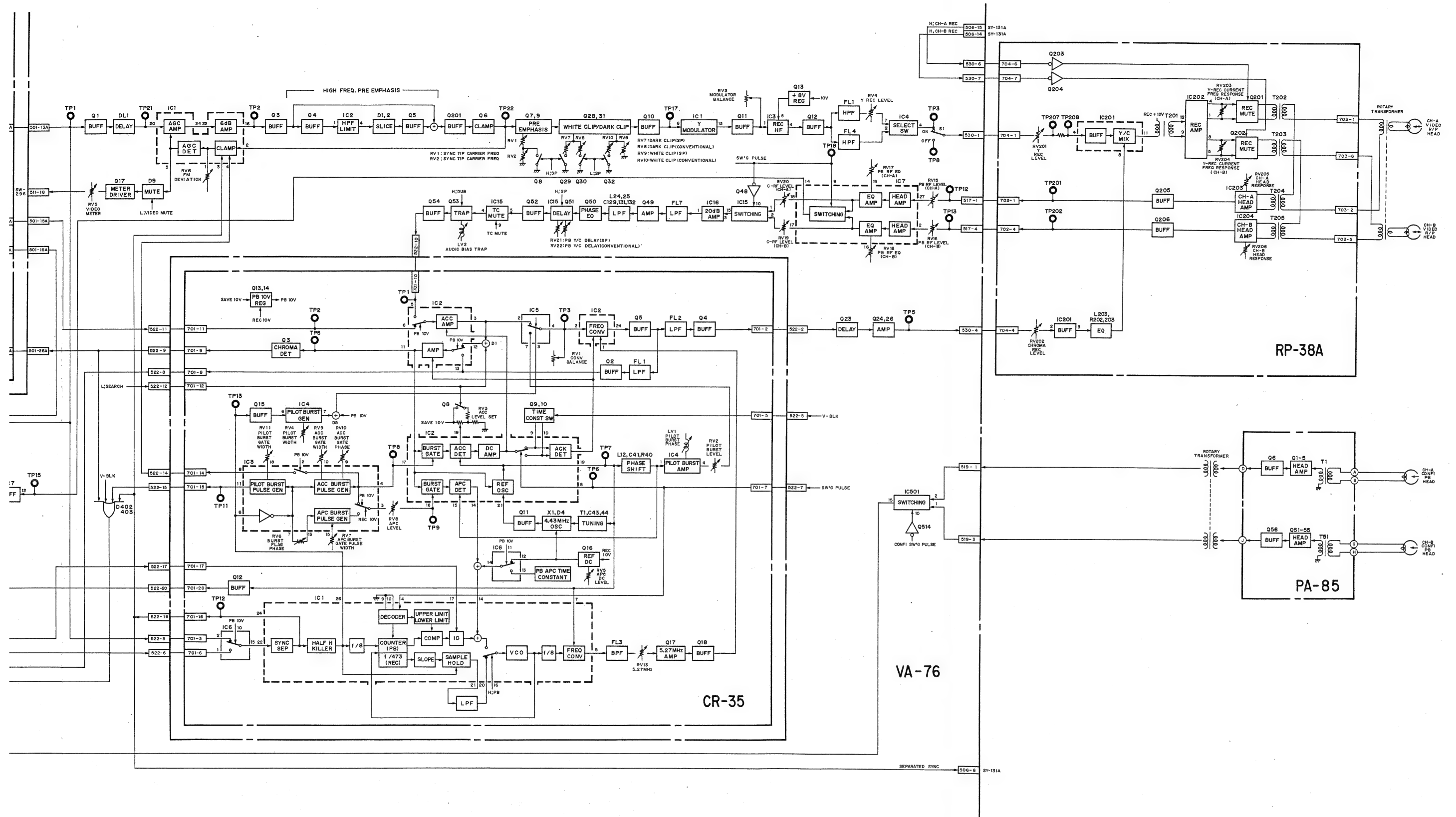




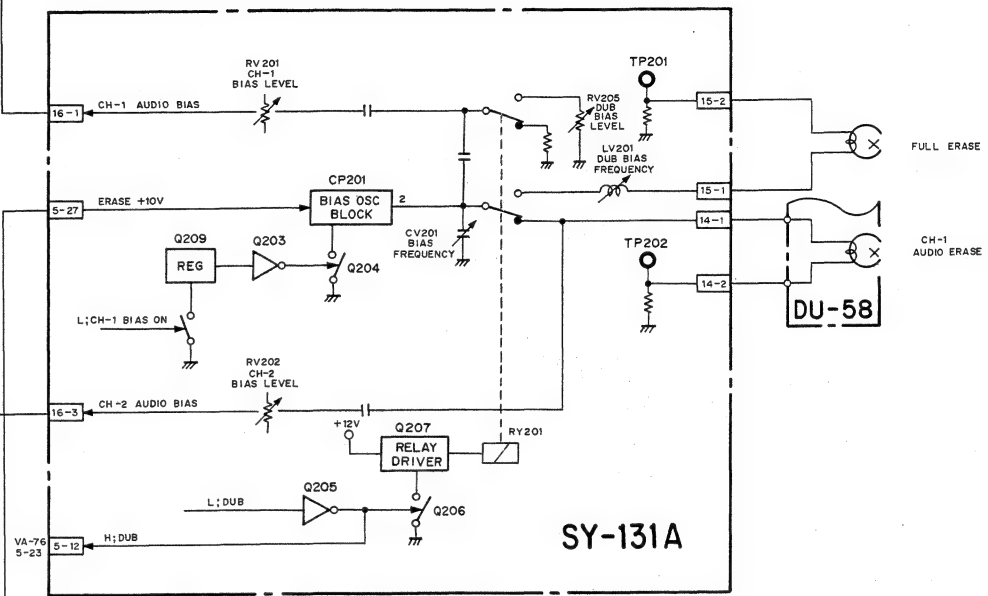
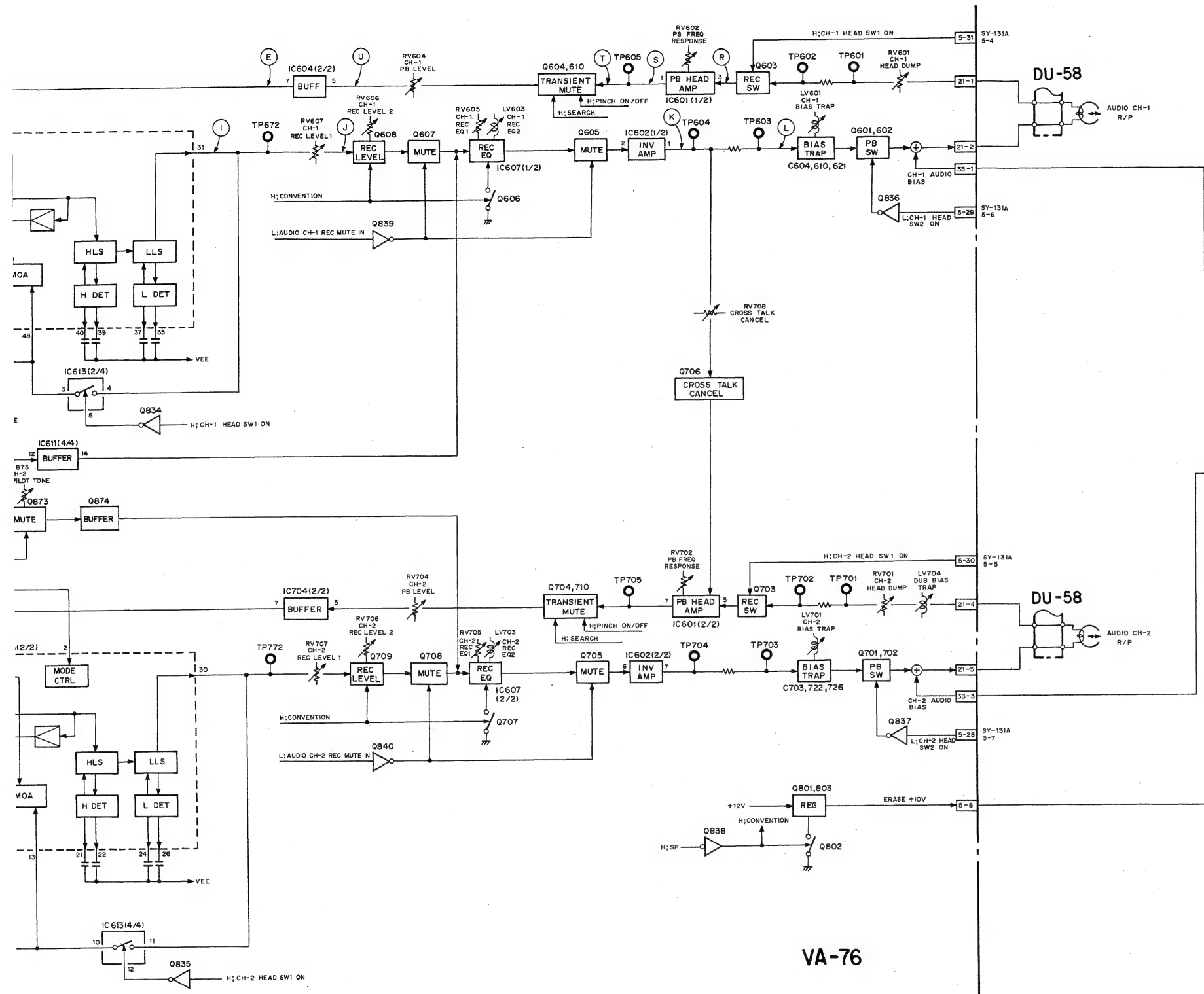
# VIDEO SYSTEM

VIDEO VIDEO



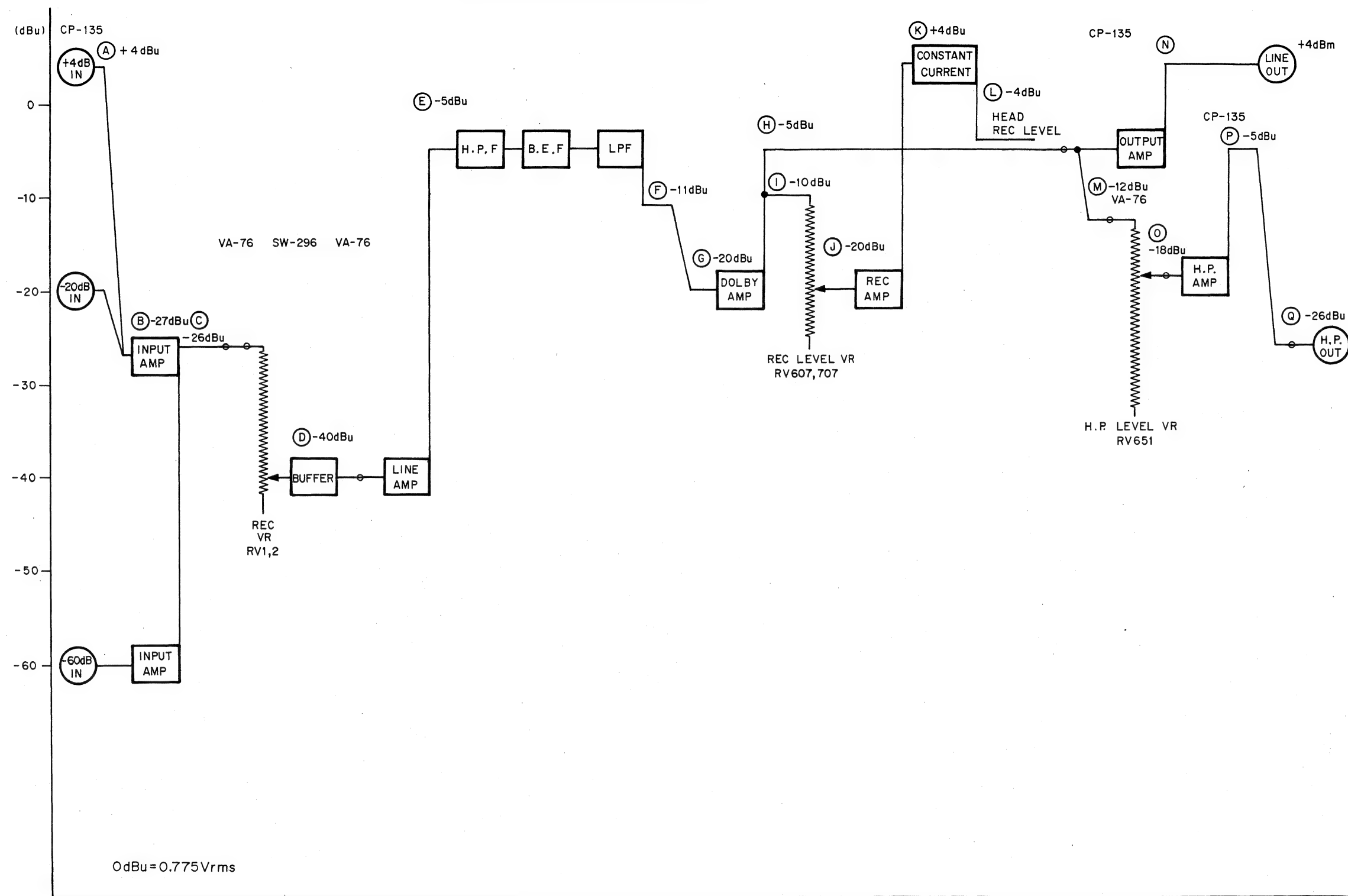




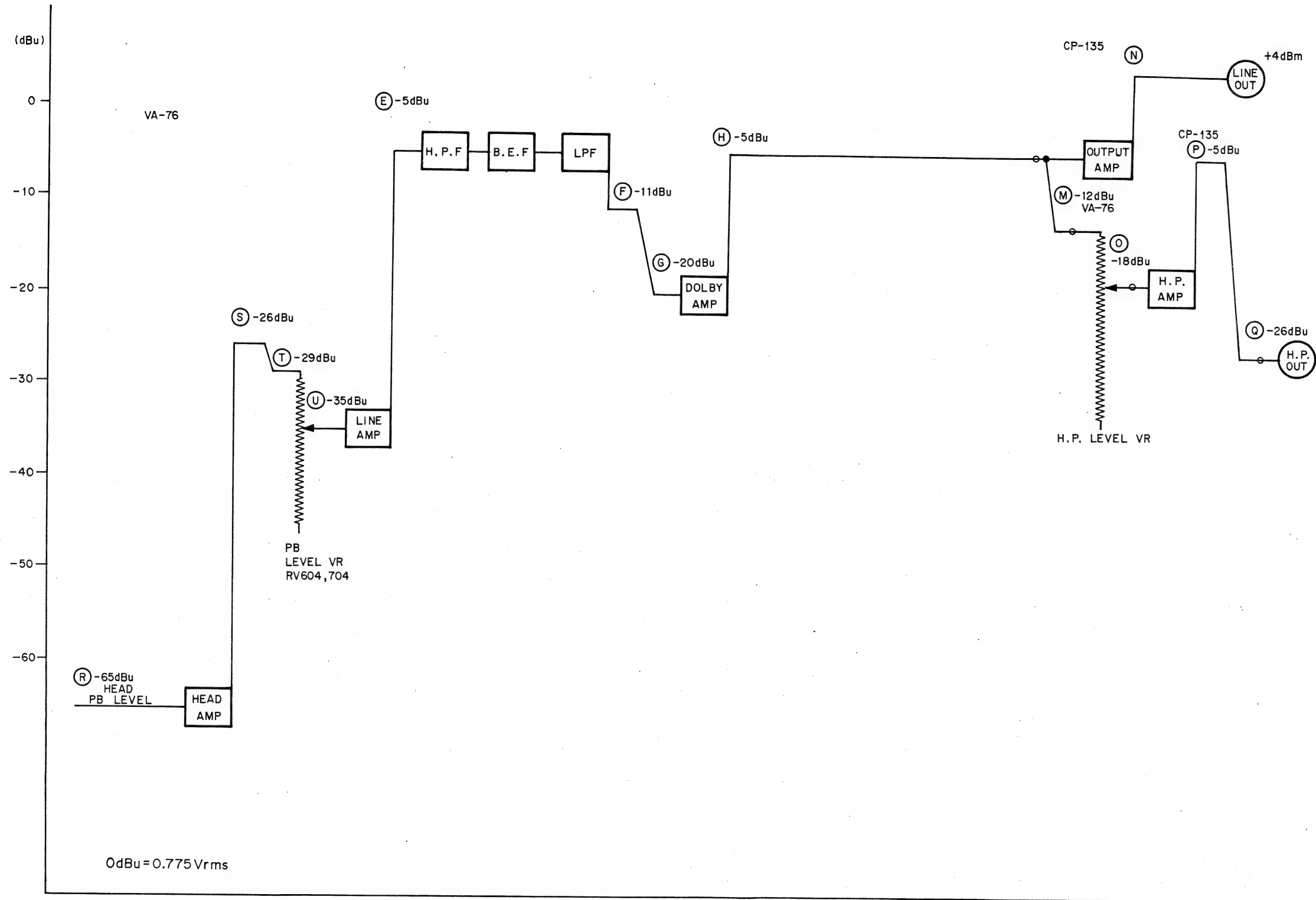


AUDIO SYSTEM LEVEL DIAGRAM

Audio Level Diagram EE SYSTEM

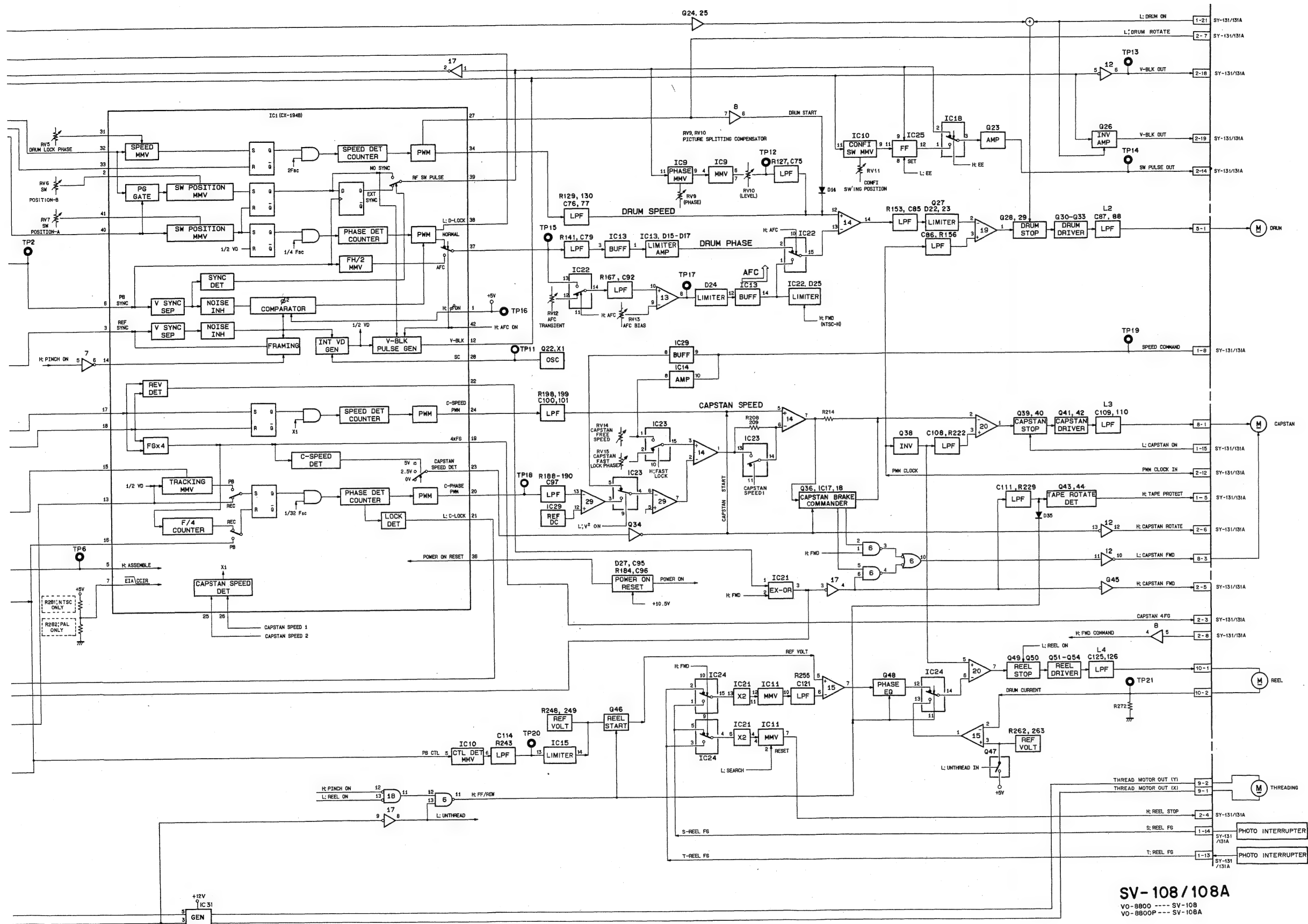


Audio Level Diagram PB SYSTEM



**SERVO      SERVO**







## SECTION 14

### SEMICONDUCTOR ELECTRODES

ICs, transistors and diodes whoses functions are equivalent are described here. Therefore, incompatible device names may be described together. For parts replacement, refer to the Spare Parts section in this manual.

IC	PAGE	IC	PAGE	IC	PAGE
AN607P	14-3	CX859	14-7	RC78L??A	14-15
AN608P	14-3	CX872	14-7	S-812??	14-15
BA7131F	14-3	CXA1020P	14-7	SN74ALS05AN	14-15
BX1140	14-3	CXA1098Q	14-8	SN74HC03NS	14-14
BX1257	14-3	CXA1261M	14-8	SN74HC4020NS	14-15
BX1262	14-3	CXL5003P	14-8	TA7060AP	14-15
BX1262L	14-3	HA12411	14-8	TA7060P	14-16
BX1264	14-3	MB3763PS	14-9	TA7357AP	14-16
BX1264L	14-3	MB88201-173N	14-9	TA7374P	14-16
BX1265	14-3	MB88323PF	14-9	TC4001BF	14-4
BX1265L	14-3	MB88505H-1019M	14-10	TC4011BF	14-4
BX373	14-3	MB88505P	14-10	TC4019BF	14-4
BX373AL	14-3	MB88505PF	14-10	TC4030BFHB	14-4
BX374	14-3	MB88544	14-11	TC4049BP	14-4
BX389	14-4	MB88551-H	14-13	TC4050BF	14-4
BX389L	14-4	MC14528BCP	14-14	TC4053BFHB	14-4
BX3915	14-4	MC14538BCP	14-14	TC4053BPFB	14-4
CD4001AE/BE	14-4	MC74HC03N	14-14	TC4066BFHB	14-5
CD4011AE/BE	14-4	NJM2041D	14-14	TC4069UBF	14-5
CD4019BE	14-4	NJM4560D	14-14	TC4081BF	14-5
CD4030AE/BE	14-4	NJM4562S-D	14-14	TC4528BFHB	14-14
CD4049AE	14-4	NJM5532M	14-14	TC4538BF	14-14
CD4050AE/BE	14-4	NJM7805A	14-14	TC4S71F	14-16
CD4053BE	14-4	RC2041MD	14-14	TC504013BF	14-16
CD4066AE/BE	14-5	RC2043MD	14-15	TL082CP	14-16
CD4069UBE	14-5	RC4558	14-15	TL082CPS	14-16
CD4081BE	14-5	RC4558M	14-15	μ A78L??AWV	14-15
CX187	14-5	RC4560M	14-15	μ PC1037HA	14-16
CX194B	14-5	RC5532M	14-15	μ PC324G2	14-16
CX20060	14-5				
CX20061	14-5				
CX22013	14-6				

The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

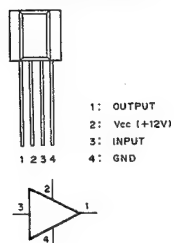


IC	PAGE
μ PC358G2 . . . . .	14-16
μ PC393G2 . . . . .	14-16
μ PC4558G2 . . . . .	14-15

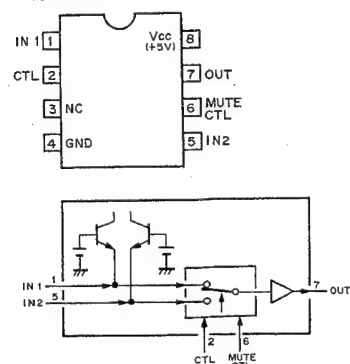
TRANSISTOR	PAGE
2SA1162G . . . . .	14-17
2SA1175F . . . . .	14-17
2SA1226 . . . . .	14-17
2SA812 . . . . .	14-17
2SA844 . . . . .	14-17
2SB553 . . . . .	14-17
2SB733 . . . . .	14-17
2SB822 . . . . .	14-17
2SC1623 . . . . .	14-17
2SC2562 . . . . .	14-17
2SC2712 . . . . .	14-17
2SC2715 . . . . .	14-17
2SC2757 . . . . .	14-17
2SC2785K . . . . .	14-17
2SC2878 . . . . .	14-17
2SC3072 . . . . .	14-17
2SC3326 . . . . .	14-17
2SC403SP . . . . .	14-17
2SD1030 . . . . .	14-17
2SD1055 . . . . .	14-17
2SD1160 . . . . .	14-17
2SD1685 . . . . .	14-17
2SD788 . . . . .	14-17
2SD789 . . . . .	14-17
2SK94 . . . . .	14-17
DTA114TU . . . . .	14-17
DTA144EK . . . . .	14-17
DTA144ES . . . . .	14-17
DTC114TU . . . . .	14-17
DTC114YK . . . . .	14-17
DTC144EK . . . . .	14-17
DTC144ES . . . . .	14-17

DIODET	PAGE
10E-2 . . . . .	14-18
1S1555S . . . . .	14-18
1S2835 . . . . .	14-18
1S2837 . . . . .	14-18
1SS119 . . . . .	14-18
1SS123 . . . . .	14-18
1SS97-1 . . . . .	14-18
1SS99 . . . . .	14-18
BR5505S . . . . .	14-18
EBR3402S . . . . .	14-18
ERA81-004 . . . . .	14-18
ERB81-004 . . . . .	14-18
FC54M . . . . .	14-18
HZS??L . . . . .	14-18
HZS11C2L . . . . .	14-18
PH302B . . . . .	14-18
RD??EB? . . . . .	14-18
RD??EL? . . . . .	14-18
RD??ESB . . . . .	14-18
RD??ESB? . . . . .	14-18
RD??FB? . . . . .	14-18
RD??MB? . . . . .	14-18
RD??MB? . . . . .	14-18
RP5551K . . . . .	14-18
SLH-34YT3 . . . . .	14-18
SLR-932A . . . . .	14-18
TLP801A . . . . .	14-18
TLR124 . . . . .	14-18

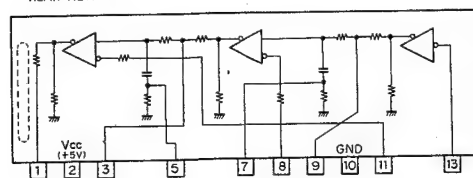
AN607P (MATSUSHITA)  
AN608P (MATSUSHITA)  
WIDE BAND AMPLIFIER  
— PRINTED SIDE VIEW —



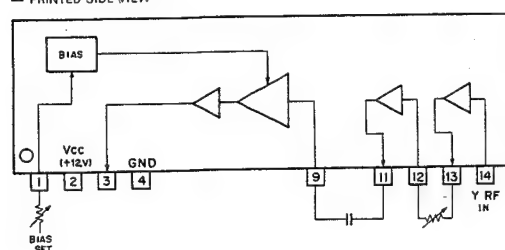
BA7131F (ROHM) FLAT PACKAGE  
VIDEO SIGNAL SWITCHER  
— TOP VIEW —



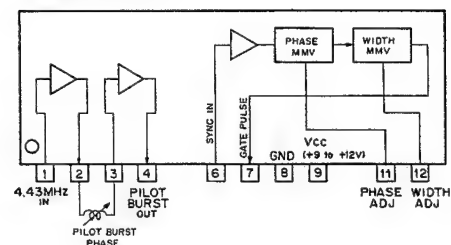
BX1140 (SONY)  
HF AMP  
— REAR VIEW —



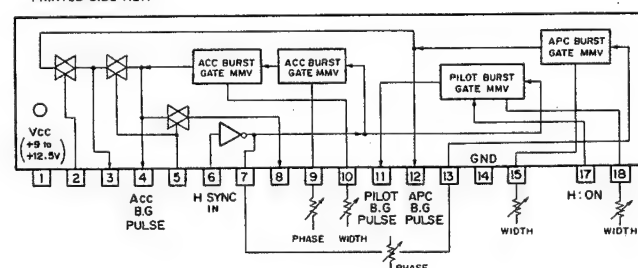
BX1257 (SONY)  
Y-RF SIDE BAND EQUALIZER  
— PRINTED SIDE VIEW —



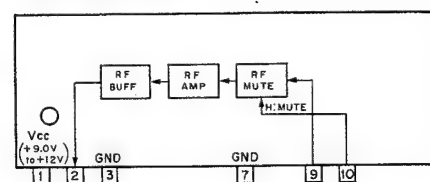
BX1262 (SONY)  
BX1262L (ROHM)  
PILOT BURST INSERTER  
— PRINTED SIDE VIEW —



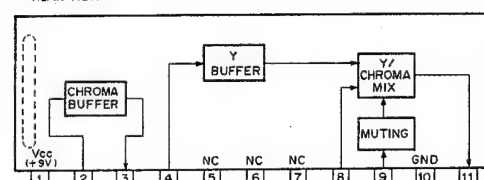
BX1264 (SONY)  
BX1264L (SONY)  
ACC/APC BURST GATE PULSE GENERATOR  
— PRINTED SIDE VIEW —



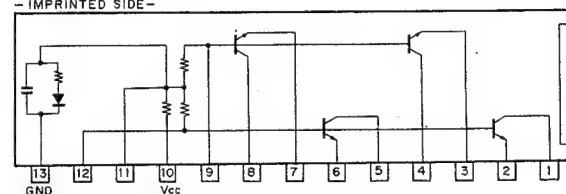
BX1265 (SONY)  
BX1265L (SONY)  
VIDEO HEAD AMPLIFIER/MUTING  
— PRINTED SIDE VIEW —



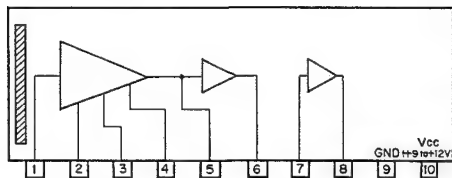
BX373 (SONY)  
BX373AL (SONY)  
MIX AMP  
— REAR VIEW —



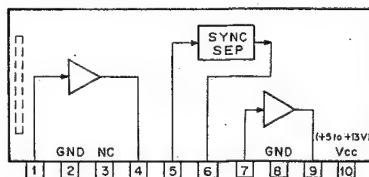
BX374 (SONY)  
REC AMP  
— IMPRINTED SIDE VIEW —



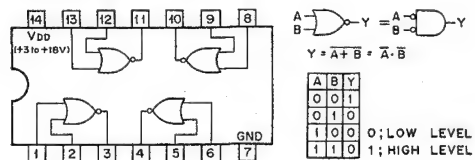
BX389 (SONY)  
BX389L (ROHM)  
VIDEO AMPLIFIER  
— PRINTED SIDE —



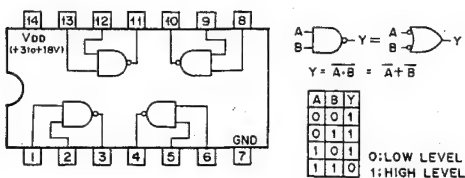
BX3915 (SONY)  
SYNC SEPARATOR  
— PRINTED SIDE —



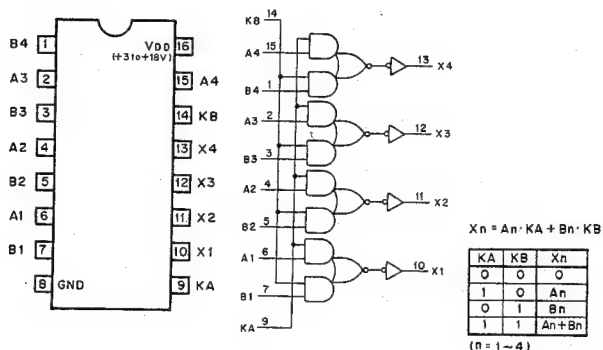
CD4001AE/BE (RCA)  
TC4001BF (TOSHIBA) FLAT PACKAGE  
C-MOS 2-INPUT NOR GATE  
— TOP VIEW —



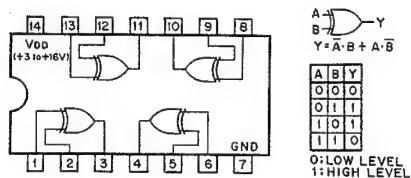
CD4011AE/BE (RCA)  
TC4011BF (TOSHIBA) FLAT PACKAGE  
C-MOS 2-INPUT NAND GATE  
— TOP VIEW —



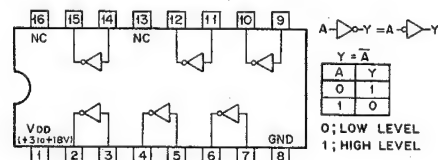
CD4019BE (RCA)  
TC4019BF (TOSHIBA) FLAT PACKAGE  
C-MOS AND-OR SELECT GATE  
— TOP VIEW —



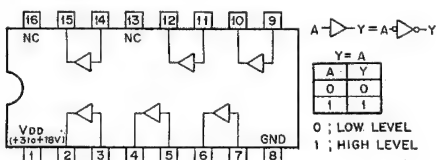
CD4030AE/BE (RCA)  
TC4030BFHB (TOSHIBA) FLAT PACKAGE  
C-MOS EXCLUSIVE OR GATE  
— TOP VIEW —



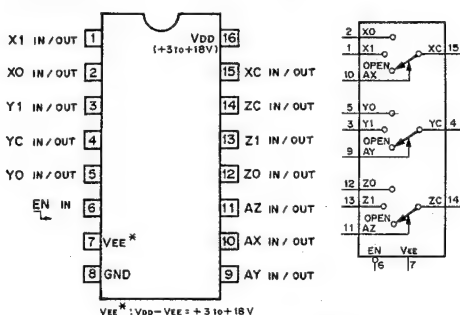
CD4049AE (RCA)  
TC4049BP (TOSHIBA)  
C-MOS INVERTING TYPE BUFFER/CONVERTER  
— TOP VIEW —



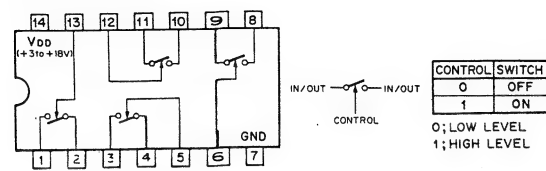
CD4050AE/BE (RCA)  
TC4050BF (TOSHIBA) FLAT PACKAGE  
C-MOS NON-INVERTING TYPE BUFFER/CONVERTER  
— TOP VIEW —



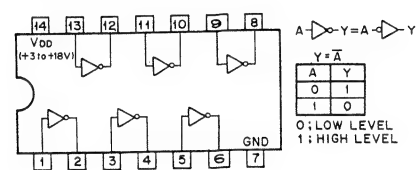
CD4053BE (RCA)  
TC4053BFHB (TOSHIBA) FLAT PACKAGE  
TC4053BPHB (TOSHIBA)  
C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER  
— TOP VIEW —



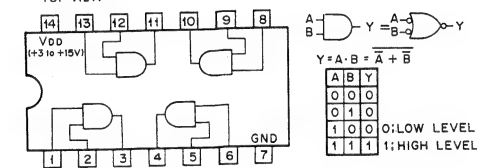
CD4066AE/BE (RCA)  
TC4066BFHB (TOSHIBA) FLAT PACKAGE  
C-MOS BILATERAL ANALOG SWITCH  
— TOP VIEW —



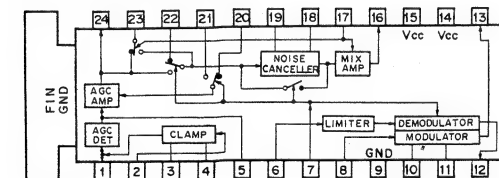
CD4069UBE (RCA)  
TC4069UBF (TOSHIBA) FLAT PACKAGE  
C-MOS INVERTER  
— TOP VIEW —



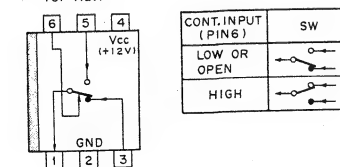
CD4081BE (RCA)  
TC4081BF (TOSHIBA) FLAT PACKAGE  
C-MOS 2-INPUT AND GATE  
— TOP VIEW —



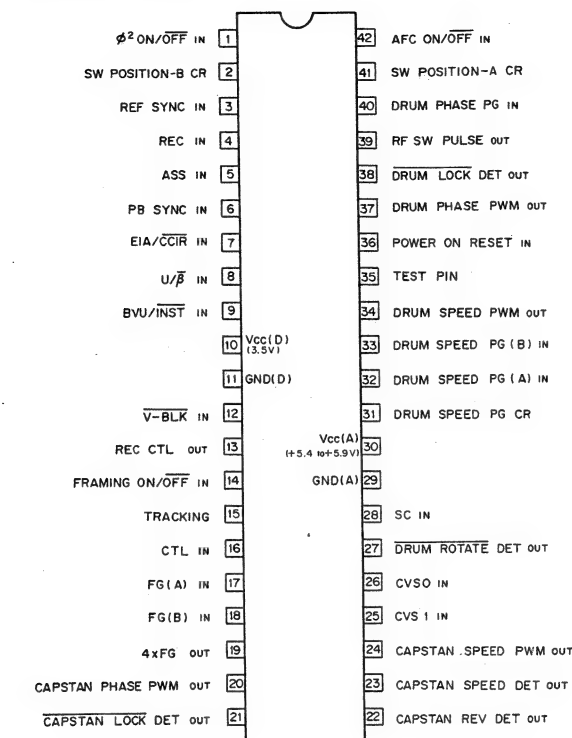
CX187 (SONY)  
LUMINANCE SIGNAL PROCESSOR  
— TOP VIEW —



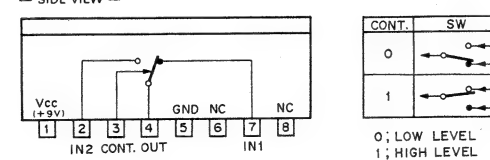
CX20060 (SONY)  
ANALOG SWITCH  
— TOP VIEW —



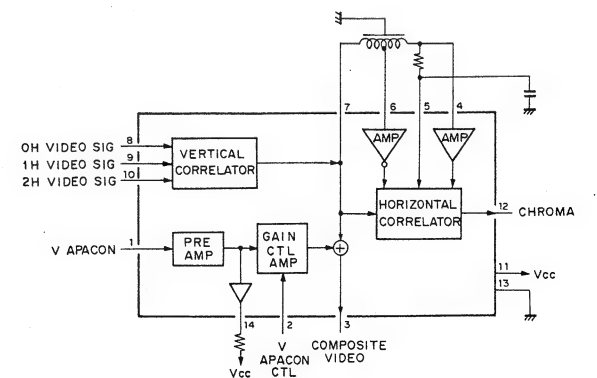
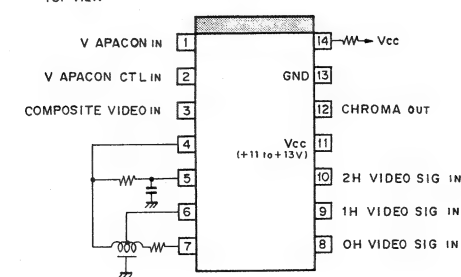
CX194B (SONY)  
DRUM/CAPSTAN PWM SERVO  
— TOP VIEW —



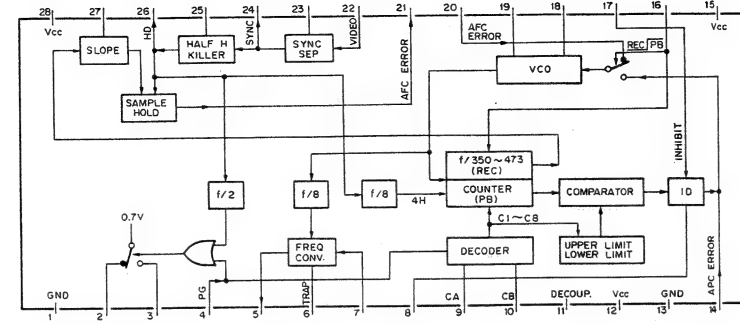
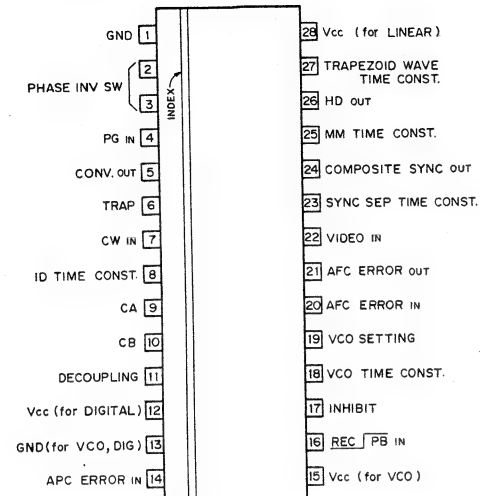
CX20061 (SONY)  
ANALOG SWITCH  
— SIDE VIEW —



CX22013 (SONY)  
DYNAMIC COMB FILTER  
— TOP VIEW —



CX859 (SONY)  
—TOP VIEW—



DECODER TRUTH TABLE

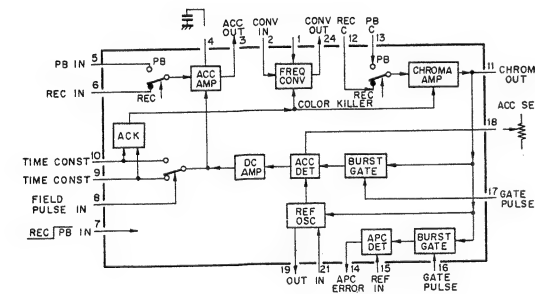
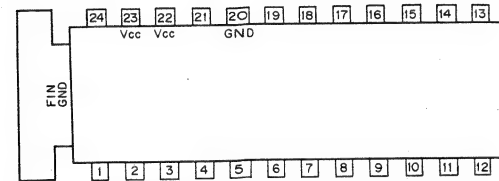
CB	CA	LOW	OPEN	HIGH
LOW	C1	C7	—	—
OPEN	C4	C5	C6	—
HIGH	—	*C2	C3	C8

\* PG: L --- C2  
PG: H --- C3

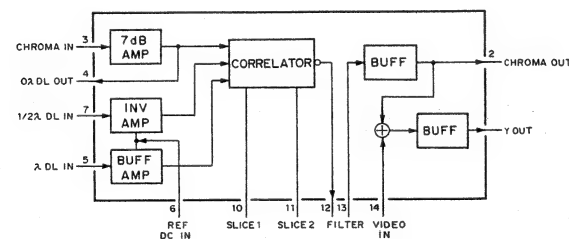
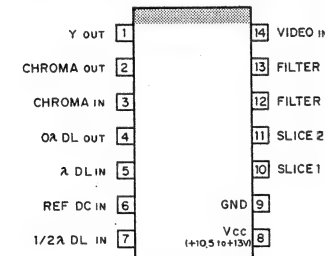
AFC/APC PRESET DATA

	AFC COUNT DOWN	APC ID COUNT UPPER LIM.	APC ID COUNT LOWER LIM.
C1	f/473	105	95
C2	f/351	129	119
C3	f/353	137	127
C4	f/351	118	104
C5	f/351	131	117
C6	f/351	144	130
C7	f/350	136	104
C8	—	125	115

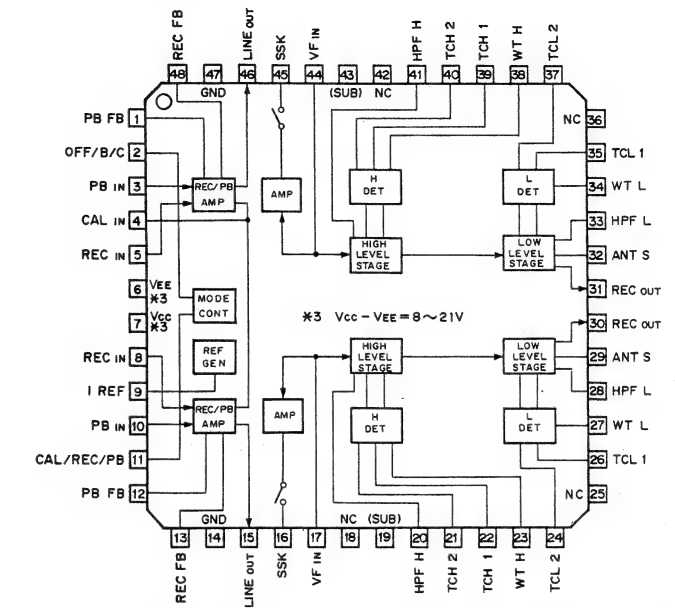
CX872 (SONY)  
—TOP VIEW—



CXA1020P (SONY)  
CHROMA CROSS-COLOR NOISE REDUCER/EDGE COMPENSATOR  
—TOP VIEW—



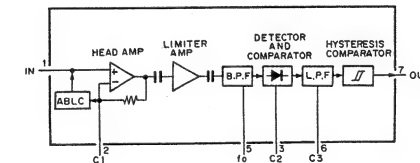
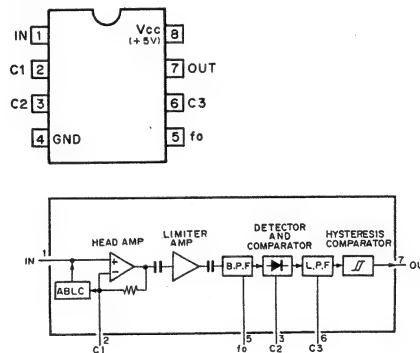
CXA1098Q (SONY) FLAT PACKAGE  
2 CHANNELS DOLBY TYPE-B/C NOISE REDUCTION  
—TOP VIEW—



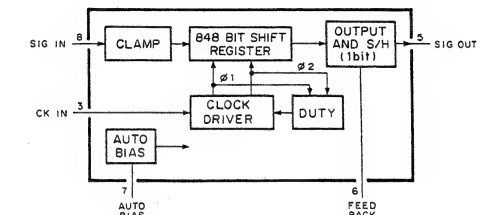
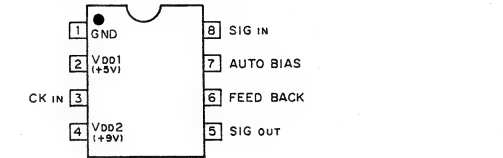
ANT S ; ANTI-SATURATION  
CAL IN ; CALIBRATION INPUT  
CAL/REC/PB ; CALIBRATION/REC/PB SELECT  
HPF H ; HPF FOR HIGH-LEVEL-STAGE  
HPF L ; HPF FOR LOW-LEVEL-STAGE  
IREF ; REFERENCE CURRENT SOURCE  
OFF/B/C ; DOLBY OFF/DOLBY TYPE-B/C SELECT  
PB FB ; PB FEEDBACK INPUT  
REC FB ; REC FEEDBACK INPUT  
SSK ; SPECTRAL SKEWING SWITCH

TCH 1 ; TIME CONSTANT-1 FOR HLS\*1  
TCH 2 ; TIME CONSTANT-2 FOR HLS  
TCL 1 ; TIME CONSTANT-1 FOR LLS\*2  
TCL 2 ; TIME CONSTANT-2 FOR LLS  
VF IN ; ENCODER INPUT  
WT H ; WEIGHTING FOR HLS  
WT L ; WEIGHTING FOR LLS  
\*1: HIGH-LEVEL-STAGE  
\*2: LOW-LEVEL-STAGE

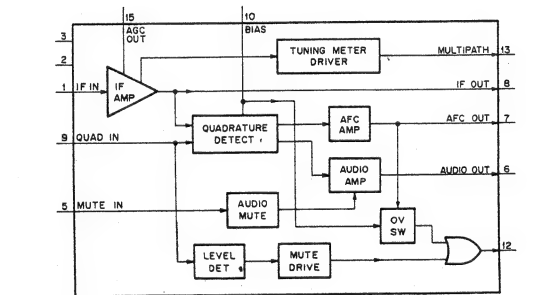
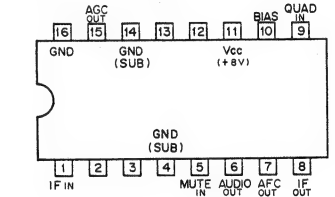
CXA1261M (SONY) FLAT PACKAGE  
INFRARED REMOTE CONTROL RECEIVER  
—TOP VIEW—



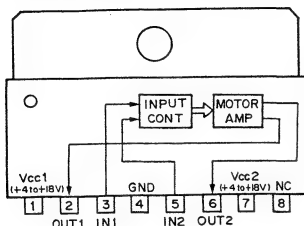
CXL5003P (SONY)  
C-MOS CCD FOR PAL 1H DELAY LINE  
—TOP VIEW—



HA12411 (HITACHI)  
FM IF AMPLIFIER  
QUADRATURE DETECT  
AUDIO AMPLIFIER  
MUTING  
AFC  
AGC  
TUNING METER DRIVER



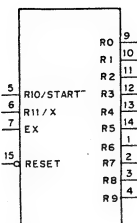
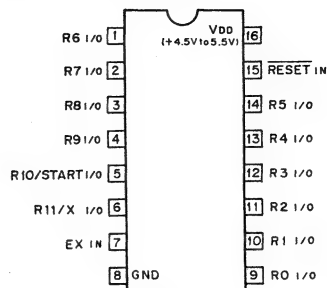
MB3763PS (FUJITSU)  
BI-DIRECTIONAL MOTOR DRIVER  
— SIDE VIEW —



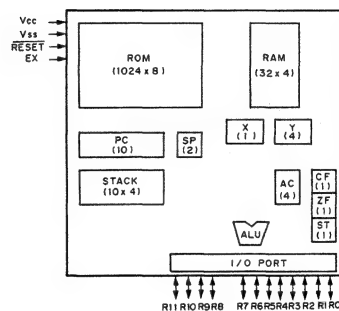
INPUT		OUTPUT		OUTPUT MODE
IN1	IN2	OUT1	OUT2	
1	1	L	L	SHORT (BRAKE)
1	0	L	H	ROTATION
0	1	H	L	REVERSE ROTATION
0	0	-	-	OPEN (HI-Z)

\*1: More than 2.4V  
0: Less than 0.4V  
H: HIGH LEVEL  
L: LOW LEVEL  
HI-Z: HI-IMPEDANCE  
-: DON'T CARE

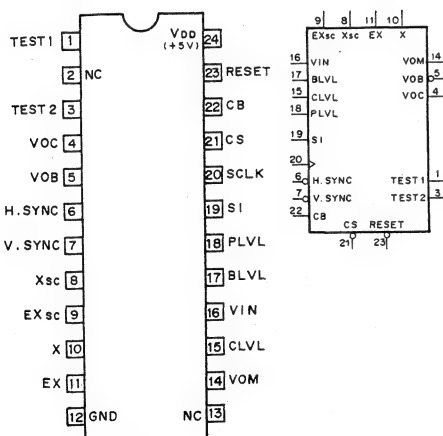
MB88201-173N (FUJITSU)  
C-MOS 4 BIT MICROCOMPUTER  
— TOP VIEW —



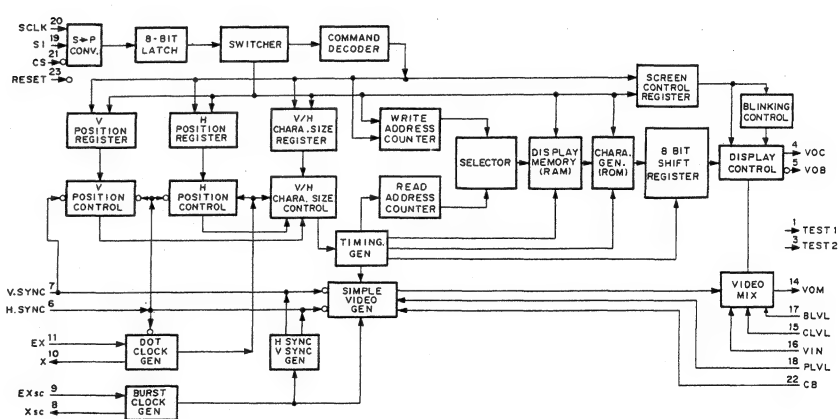
EX : EXTERNAL X'TAL IN  
RO-R11 : I/O PORT(R) IN/OUT  
RESET : RESET IN  
START : STANDBY RELEASE IN  
R11/X : EXT CLOCK IN/INT CLOCK OUT



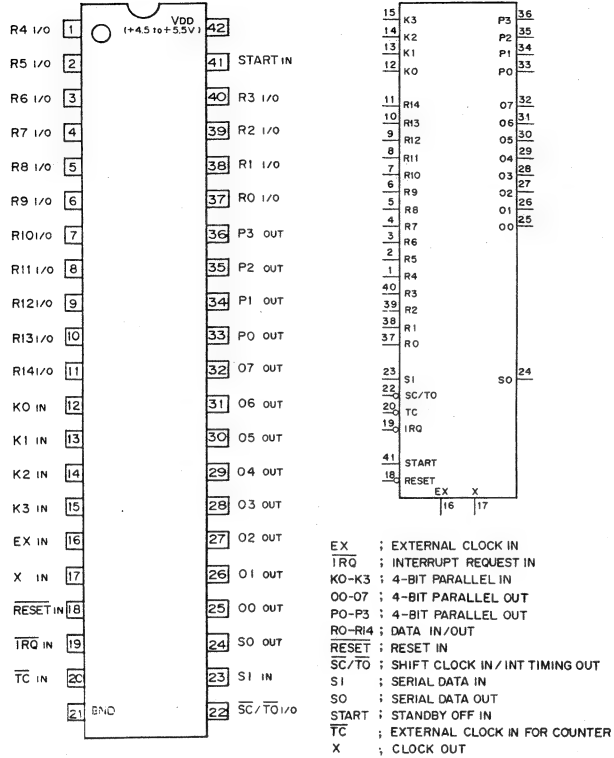
MB88323PF (FUJITSU) FLAT PACKAGE  
C-MOS TV DISPLAY CONTROLLER  
— TOP VIEW —



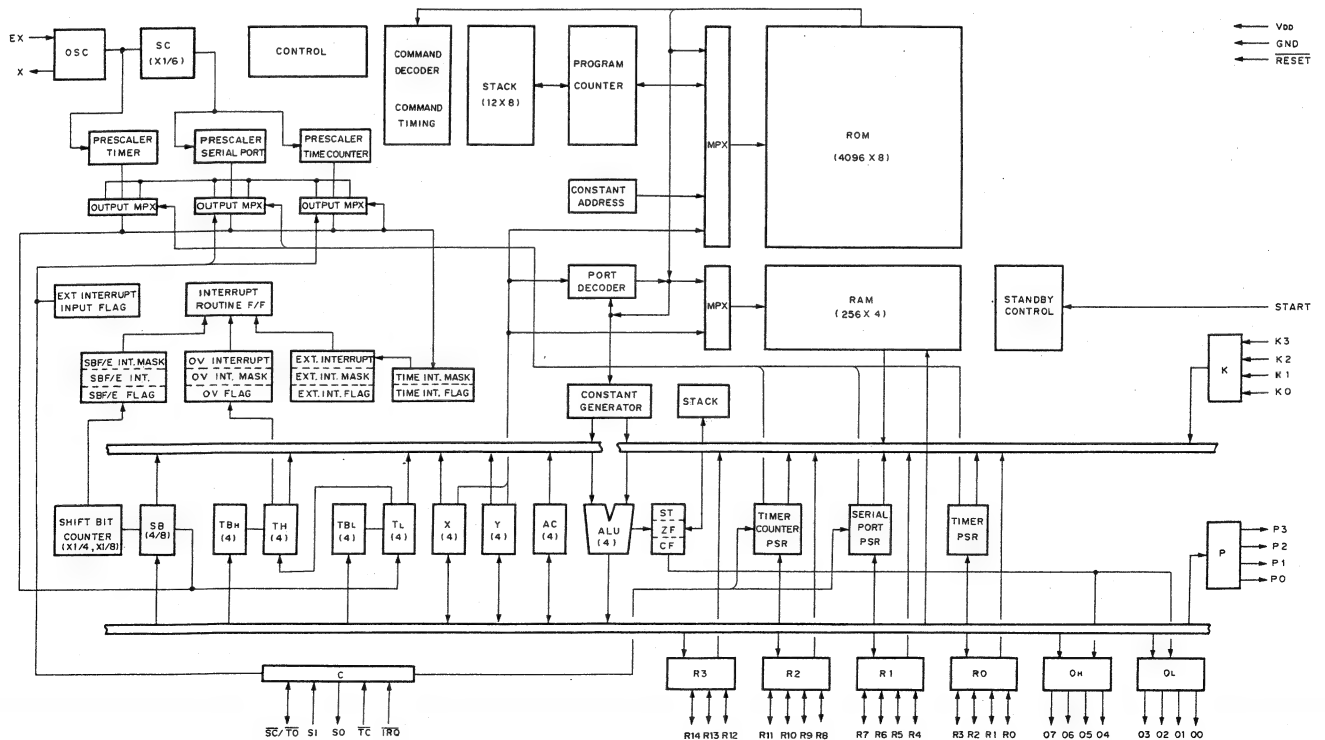
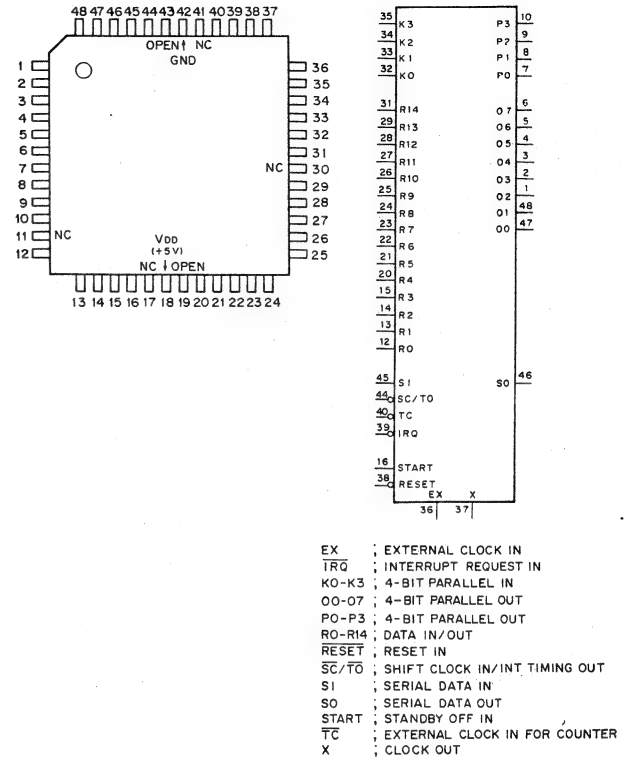
BLVL : BORDER OR BACKGROUND ANALOG LEVEL INPUT  
CB : COLOR BURST DETECTION INPUT  
CLVL : CHARACTER ANALOG LEVEL INPUT  
CS : CHIP SELECT INPUT  
EX : DOT CLOCK INPUT  
EXsc : COLOR BURST CLOCK INPUT  
H.SYNC : H SYNC INPUT  
PLVL : VIDEO LEVEL CONTROL INPUT  
SI : SERIAL DATA INPUT  
TEST1 : CHIP TEST OUTPUT  
TEST2 : (NORMALLY SET TO OPEN)  
VIN : VIDEO SIGNAL INPUT  
VOB : BORDER OR BACKGROUND SIGNAL OUTPUT  
VOC : CHARACTER SIGNAL OUTPUT  
VOM : VIDEO/CHARACTER/BORDER OR BACKGROUND MIX OUTPUT  
V.SYNC : V SYNC INPUT  
X : DOT CLOCK OUTPUT  
Xsc : COLOR BURST CLOCK OUTPUT



MB88505H-1019M (FUJITSU)  
MB88505P (FUJITSU)  
C-MOS 4-BIT ONE-CHIP MICROCOMPUTER  
— TOP VIEW —



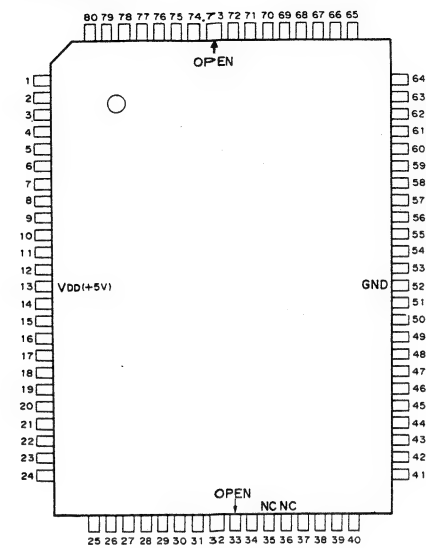
MB88505PF (FUJITSU) FLAT PACKAGE  
C-MOS 4-BIT ONE-CHIP MICROCOMPUTER  
— TOP VIEW —



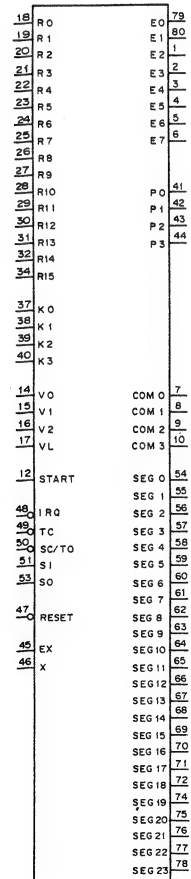


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MB88544 (FUJITSU) FLAT PACKAGE  
C-MOS 4-BIT ONE-CHIP MICROCOMPUTER WITH LCD DRIVER  
- TOP VIEW -



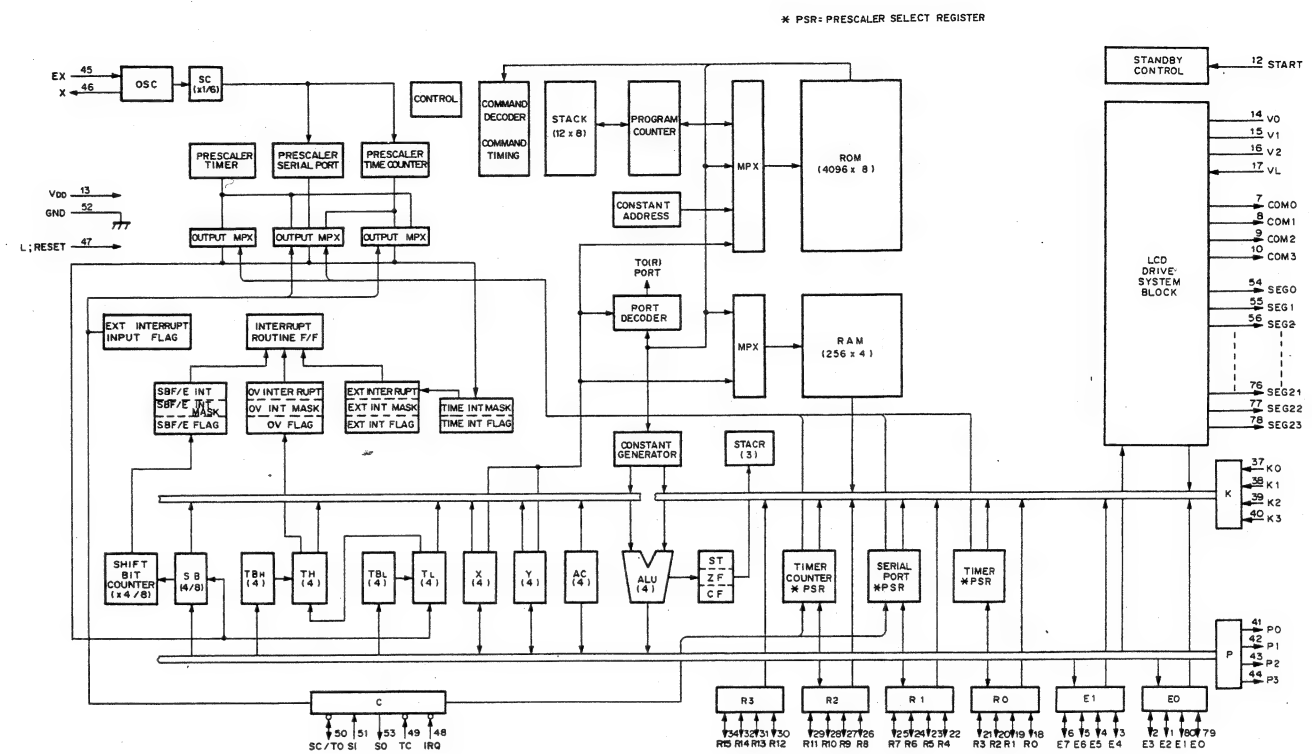
PIN NO.	IN	OUT	SYMBOL	PIN NO.	IN	OUT	SYMBOL
1	0	0	E2	41	0	0	P0
2	0	0	E3	42	0	0	P1
3	0	0	E4	43	0	0	P2
4	0	0	E5	44	0	0	P3
5	0	0	E6	45	0	0	EX
6	0	0	E7	46	0	0	X
7	0	0	COM0	47	0	0	RESET
8	0	0	COM1	48	0	0	IRQ
9	0	0	COM2	49	0	0	TC
10	0	0	COM3	50	0	0	SC/TO
11	0	0	TRST	51	0	0	TRST
12	0	0	SPART	52	0	0	GND
13	0	0	VDD(+5V)	53	0	0	SO
14	0	0	V0	54	0	0	SEG0
15	0	0	V1	55	0	0	SEG1
16	0	0	V2	56	0	0	SEG2
17	0	0	VL	57	0	0	SEG3
18	0	0	R0	58	0	0	SEG4
19	0	0	R1	59	0	0	SEG5
20	0	0	R2	60	0	0	SEG6
21	0	0	R3	61	0	0	SEG7
22	0	0	R4	62	0	0	SEG8
23	0	0	R5	63	0	0	SEG9
24	0	0	R6	64	0	0	SEG10
25	0	0	R7	65	0	0	SEG11
26	0	0	R8	66	0	0	SEG12
27	0	0	R9	67	0	0	SEG13
28	0	0	R10	68	0	0	SEG14
29	0	0	R11	69	0	0	SEG15
30	0	0	R12	70	0	0	SEG16
31	0	0	R13	71	0	0	SEG17
32	0	0	R14	72	0	0	SEG18
33	0	0	OPEN	73	0	0	OPEN
34	0	0	R15	74	0	0	SEG19
35	-	-	-	75	0	0	SEG20
36	-	-	-	76	0	0	SEG21
37	0	0	K0	77	0	0	SEG22
38	0	0	K1	78	0	0	SEG23
39	0	0	K2	79	0	0	E0
40	0	0	K3	80	0	0	E1



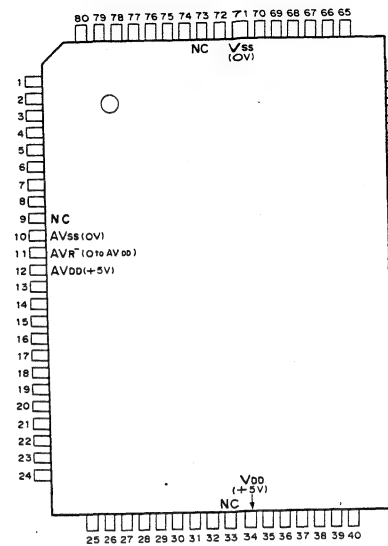
```

COM0-COM3      ; LCD COMMON OUT
E0-E7           ; I/O PORT (E PORT) IN/OUT
EX              ; EXTERNAL CLOCK IN
IRQ             ; EXTERNAL INTERRUPT
                REQUEST IN (  )
K0-K3           ; K PORT IN
P0-P3           ; P PORT OUT
R0-R15         ; I/O PORT (R PORT) IN/OUT
RES0-RES15     ; RESISTOR IN
SC7/T0         ; SHIFT CLOCK IN/OUT/TIMING OUT
SEG0-SEG23     ; LCD SEGMENT OUT
SI              ; SERIAL DATA IN
SO              ; SERIAL DATA OUT
START          ; STANDBY OFF IN
TC              ; TIMEOUT CLOCK IN (  )
V0-V2          ; LCD DRIVE BIAS VOLTAGE
VL              ; LCD DRIVE BIAS ON/OFF CONTROL
X              ; EXTERNAL CLOCK OUT

```

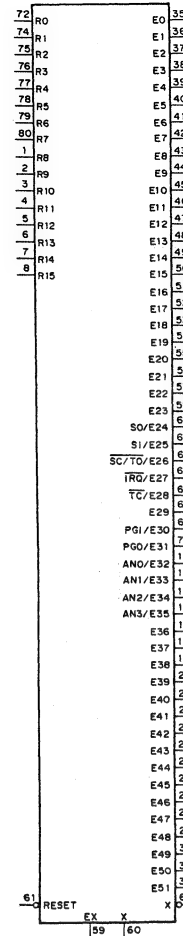


MB88551-H (FUJITSU) FLAT PACKAGE  
C-MOS 4 BIT ONE-CHIP MICROPROCESSOR  
— TOP VIEW —



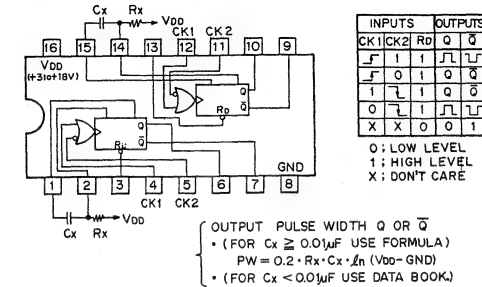
IN	OUT	SYMBOL	IN	OUT	SYMBOL
1	0	R8	41	0	E6
2	0	R9	42	0	E7
3	0	R10	43	0	E8
4	0	R11	44	0	E9
5	0	R12	45	0	E10
6	0	R13	46	0	E11
7	0	R14	47	0	E12
8	0	R15	48	0	E13
9	—	—	49	0	E14
10	—	—	50	0	E15
11	—	—	51	0	E16
12	—	—	52	0	E17
13	0	E32/ANO	53	0	E18
14	0	E33/AN1	54	0	E19
15	0	E34/AN2	55	0	E20
16	0	E35/AN3	56	0	E21
17	0	E36	57	0	E22
18	0	E37	58	0	E23
19	0	E38	59	0	EX
20	0	E39	60	0	X
21	0	E40	61	0	RESET
22	0	E41	62	0	X/(OPEN)*
23	0	E42	63	0	E24/SO
24	0	E43	64	0	E25/SI
25	0	E44	65	0	E26/SC/TO
26	0	E45	66	0	E27/IRQ
27	0	E46	67	0	E28/TC
28	0	E47	68	0	E29/START*
29	0	E48	69	0	E30/PGI
30	0	E49	70	0	E31/PGO
31	0	E50	71	0	VSS
32	0	E51	72	0	RO
33	—	—	73	—	—
34	0	VDD	74	0	R1
35	0	E0	75	0	R2
36	0	E1	76	0	R3
37	0	E2	77	0	R4
38	0	E3	78	0	R5
39	0	E4	79	0	R6
40	0	E5	80	0	R7

\* MASK OPTION

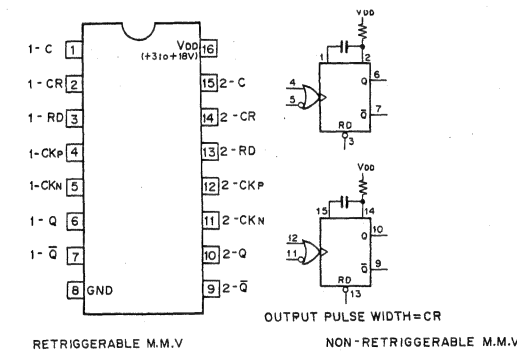


AN0-AN3 ;ANALOG SIGNAL IN  
RO-E51 ;I/O PORT (E PORT) IN/OUT  
EX ;EXTERNAL CLOCK IN  
IRQ ;EXTERNAL INTERRUPT REQUEST IN (L)  
PGI ;PROGRAMMABLE PULSE GENERATOR TRIGGER IN  
PGO ;PROGRAMMABLE PULSE GENERATOR OUT  
RO-R15 ;I/O PORT (R PORT) IN/OUT  
RESET ;RESET IN  
SC/TO ;SHIFT CLOCK IN/OUT /TIMING OUT  
SI ;SERIAL DATA IN  
SO ;SERIAL DATA OUT  
TC ;COUNT CLOCK IN (L)  
X ;CLOCK OUT

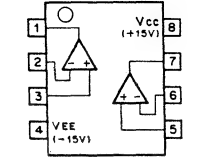
MC14528BCP (MOTOROLA)  
TC4528BFHB (TOSHIBA) FLAT PACKAGE  
C-MOS RETRIGGERABLE/RESETTABLE MMV  
— TOP VIEW —



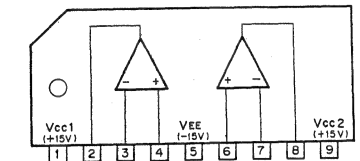
MC14538BCP (MOTOROLA)  
TC4538BF (TOSHIBA) FLAT PACKAGE  
C-MOS DUAL RETRIGGERABLE/NON-RETRIGGERABLE MONOSTABLE MULTIVIBRATOR  
— TOP VIEW —



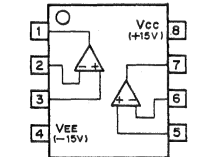
NJM4560D (JRC)  
OPERATIONAL AMPLIFIER  
— TOP VIEW —



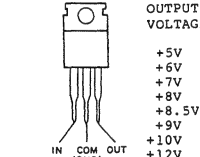
NJM4562S-D (JRC)  
HIGH PERFORMANCE DUAL OPERATIONAL AMPLIFIER  
— SIDE VIEW —



NJM5532M (JRC) FLAT PACKAGE  
OPERATIONAL AMPLIFIER  
— TOP VIEW —



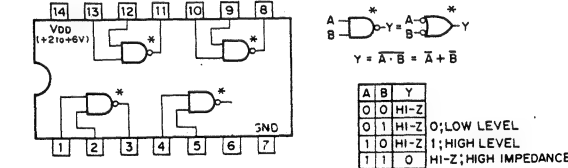
NJM7805A (JRC)  
POSITIVE VOLTAGE REGULATOR (1A)  
— SIDE VIEW —



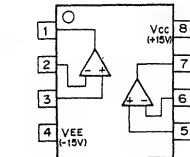
OUTPUT VOLTAGE	AN78??	FS78??	HA178??P	L78??	NJM78??B	NJM78??A/K
+5V	AN7805	FS7805	HA17805P	L7805	-----	NJM7805A/K
+6V	AN7806	-----	HA17806P	-----	-----	NJM7806A/K
+7V	AN7807	-----	HA17807P	L7807	-----	NJM7807A/K
+8V	AN7808	-----	HA17808P	-----	-----	NJM7808A/K
+8.5V	-----	-----	-----	-----	-----	-----
+9V	AN7809	-----	-----	-----	-----	NJM7809A/K
+10V	AN7810	-----	-----	-----	-----	-----
+12V	AN7812	FS7812	HA17812P	-----	-----	NJM7812B
+15V	AN7815	FS7815	HA17815P	-----	-----	NJM7815A/K
+18V	AN7818	-----	HA17818P	-----	-----	NJM7818A/K
+20V	AN7820	-----	-----	-----	-----	NJM7820A/K
+24V	AN7824	FS7824	HA17824P	-----	-----	NJM7824A/K

OUTPUT VOLTAGE	UA78??UC	uPC143??H	uPC78??H	TA78??P/AP
+5V	UA7805UC	uPC14305H	uPC7805H	TA78005P/AP
+6V	UA7806UC	-----	-----	TA78006P/AP
+7V	UA7807UC	-----	-----	TA78007P/AP
+8V	UA7808UC	uPC14308H	uPC7808H	TA78008P/AP
+8.5V	UA7809UC	-----	-----	TA78009P/AP
+9V	-----	-----	-----	TA78010P/AP
+10V	-----	-----	-----	TA78011P/AP
+12V	UA7812UC	uPC14312H	uPC7812H	TA78012P/AP
+15V	UA7815UC	uPC14315H	uPC7815H	TA78015P/AP
+18V	UA7818UC	uPC14318H	uPC7818H	TA78018P/AP
+20V	UA7820UC	-----	-----	TA78020P/AP
+24V	UA7824UC	uPC14324H	uPC7824H	TA78024P/AP

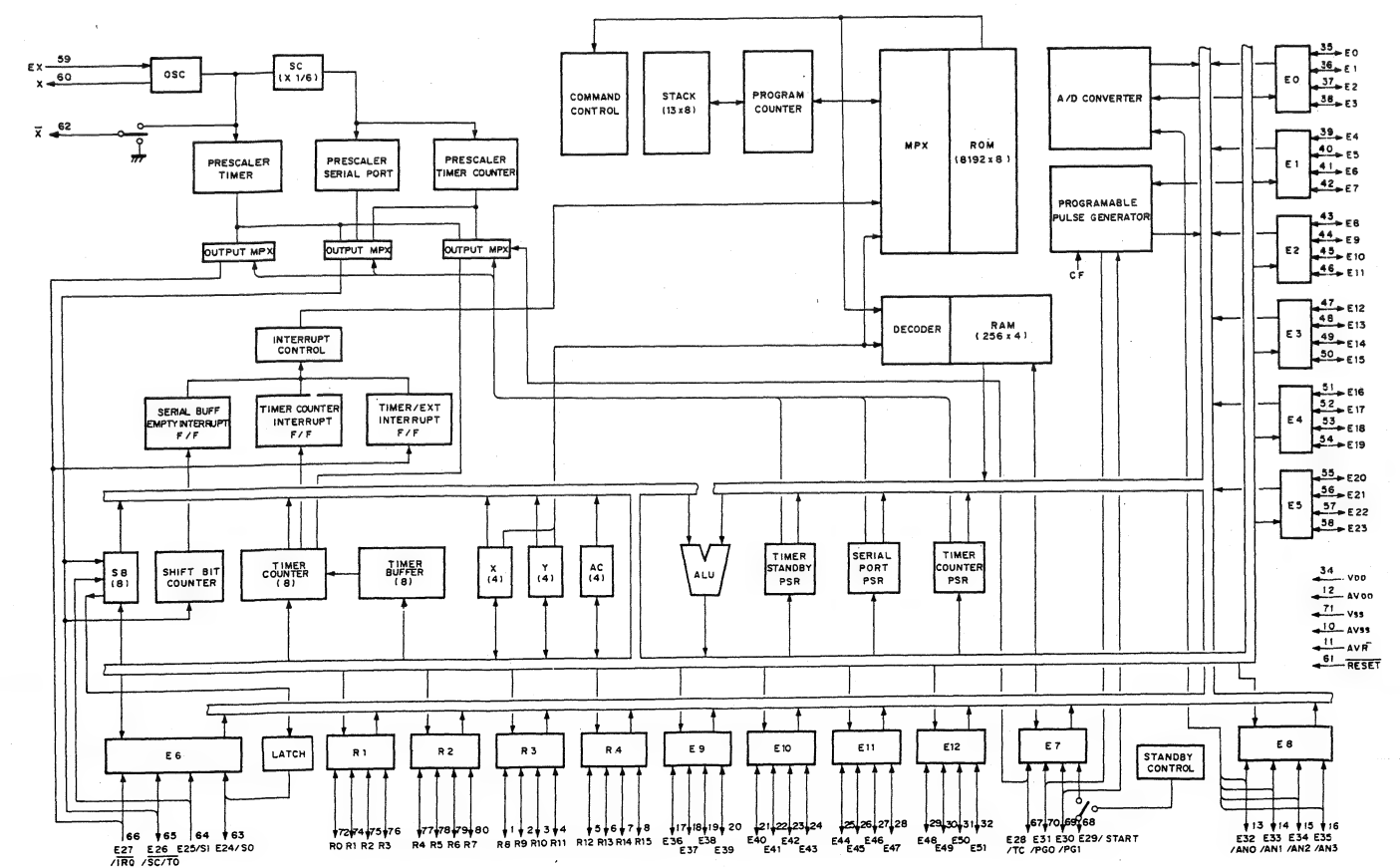
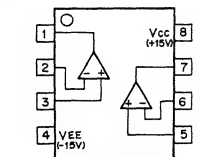
MC74HC03N (MOTOROLA)  
SN74HC03NS (TI)  
C-MOS 2-INPUT POSITIVE-NAND GATE WITH OPEN-DRAIN  
— TOP VIEW —



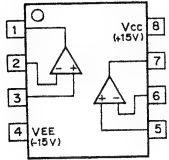
NJM2041D (JRC)  
OPERATIONAL AMPLIFIER  
— TOP VIEW —



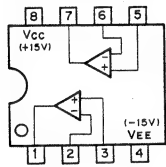
RC2041MD (RAYTHEON) FLAT PACKAGE  
OPERATIONAL AMPLIFIER  
— TOP VIEW —



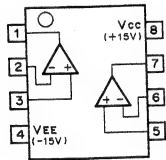
RC2043MD (RAYTHEON) FLAT PACKAGE  
OPERATIONAL AMPLIFIER  
— TOP VIEW —



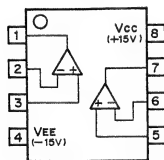
RC4558 (RAYTHEON)  
RC4558M (RAYTHEON) FLAT PACKAGE  
uPC4558G2 (NEC) FLAT PACKAGE  
OPERATIONAL AMPLIFIER  
— TOP VIEW —



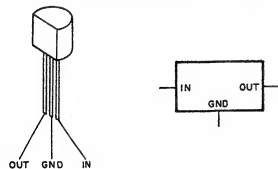
RC4560M (RAYTHEON) FLAT PACKAGE  
OPERATIONAL AMPLIFIER  
— TOP VIEW —



RC5532M (RAYTHEON) FLAT PACKAGE  
OPERATIONAL AMPLIFIER  
— TOP VIEW —



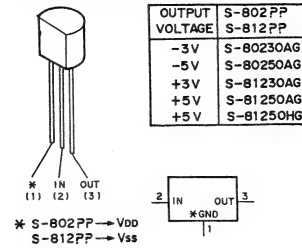
RC78L??A (RAYTHEON)  
uA78L??AWV (FSC)  
POSITIVE VOLTAGE REGULATOR (100mA)



OUTPUT VOLTAGE NJM78L??A RC78L??A uA78L??ACL uA78L??AWV uPC78L??J AN78L??

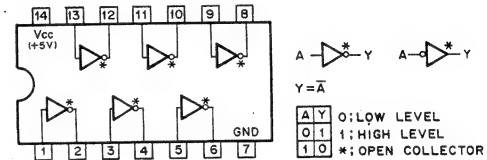
OUTPUT VOLTAGE	NJM78L??A	RC78L??A	uA78L??ACL	uA78L??AWV	uPC78L??J	AN78L??
+2.6V	NJM78L02A	RC78L02A	uA78L02ACL	uA78L26AWV	-----	AN78L04
+4V	NJM78L05A	RC78L05A	uA78L05ACL	uA78L05AWV	uPC78L05J	AN78L05
+5V	NJM78L06A	RC78L06A	uA78L06ACL	uA78L06AWV	-----	AN78L06
+6V	-----	-----	uA78L06ACL	uA78L62AWV	-----	-----
+6.2V	-----	-----	uA78L06ACL	uA78L62AWV	-----	-----
+7V	-----	-----	-----	-----	-----	AN78L07
+8V	NJM78L08A	RC78L08A	uA78L08ACL	-----	uPC78L08J	AN78L08
+8.2V	-----	-----	uA78L08ACL	uA78L82AWV	-----	-----
+9V	NJM78L09A	RC78L09A	uA78L09ACL	uA78L09AWV	-----	AN78L09
+10V	-----	-----	uA78L10ACL	-----	uPC78L10J	AN78L10
+10V	-----	-----	uA78L10ACL	-----	uPC78L10J	AN78L10
+12V	NJM78L12A	RC78L12A	uA78L12ACL	uA78L12AWV	uPC78L12J	AN78L12
+15V	NJM78L15A	RC78L15A	uA78L15ACL	uA78L15AWV	uPC78L15J	AN78L15
+18V	NJM78L18A	RC78L18A	-----	-----	-----	AN78L18
+20V	NJM78L20A	RC78L20A	-----	-----	-----	AN78L20
+24V	NJM78L24A	RC78L24A	-----	uA78L24AWV	-----	AN78L24

S-812?? (SEIKO I AND E)  
C-MOS VOLTAGE REGULATOR

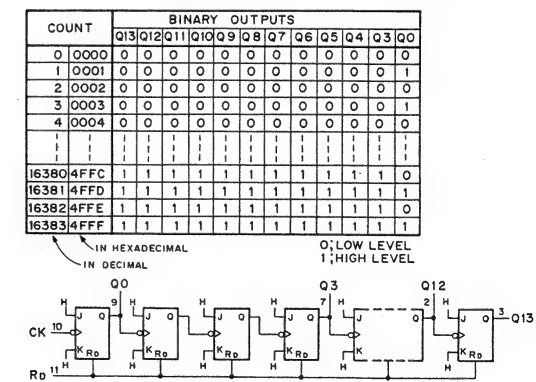
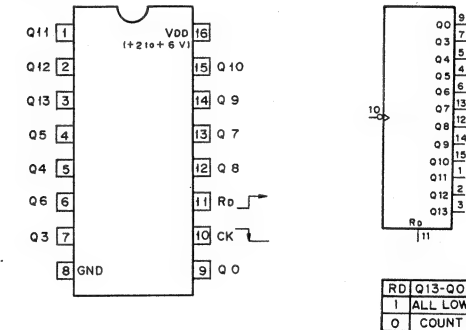


\* S-802?? → VDD  
\* S-812?? → VSS

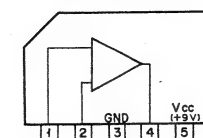
SN74ALS05AN (TI)  
TTL INVERTER WITH OPEN-COLLECTOR  
— TOP VIEW —



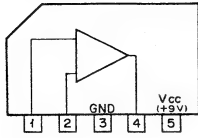
SN74HC4020NS (TI)  
C-MOS 14-STAG RIPPLE-CARRY BINARY COUNTER/DRIVER  
— TOP VIEW —



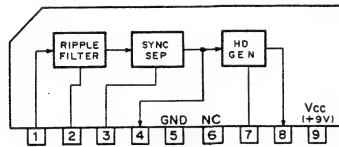
TA7060AP (TOSHIBA)  
LINEAR AMP  
— SIDE VIEW —



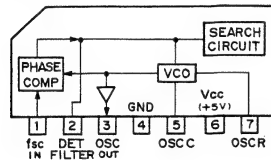
TA7060P (TOSHIBA)  
LINEAR AMP  
— SIDE VIEW —



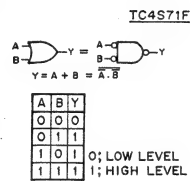
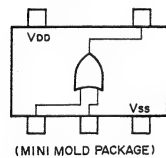
TA7357AP (TOSHIBA)  
SYNC SEPARATOR/HD PULSE GENERATOR  
— SIDE VIEW —



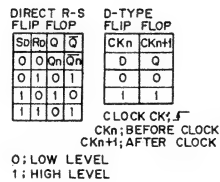
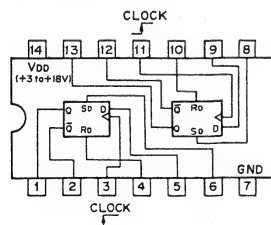
TA7374P (TOSHIBA)  
THREE TIMES OSCILLATOR  
— SIDE VIEW —



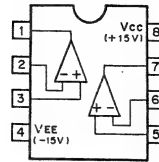
TC4S71F (TOSHIBA) FLAT PACKAGE  
C-MOS 2-INPUT OR GATE  
— TOP VIEW —



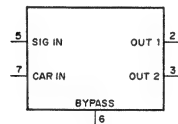
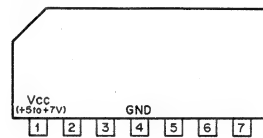
TC504013BF (TOSHIBA) FLAT PACKAGE  
C-MOS D-TYPE FLIP FLOP WITH DIRECT SET/RESET  
— TOP VIEW —



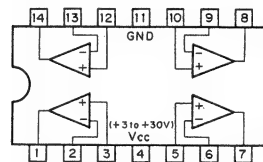
TL082CP (TI)  
TL082CPS (TI) FLAT PACKAGE  
OPERATIONAL AMPLIFIER  
(J FET-INPUT)  
— TOP VIEW —



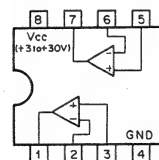
uPC1037HA (NEC)  
DOUBLE-BALANCED MODULATOR  
— SIDE VIEW —



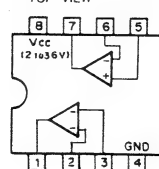
uPC324G2 (NEC) FLAT PACKAGE  
QUAD. OP. AMPLIFIER  
— TOP VIEW —



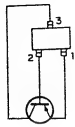
uPC358G2 (NEC) FLAT PACKAGE  
DUAL OPERATIONAL AMPLIFIERS  
— TOP VIEW —



uPC393G2 (NEC) FLAT PACKAGE  
VOLTAGE COMPARATOR  
— TOP VIEW —

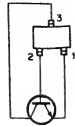


TOP VIEW



2SA1162G  
2SA1226  
2SA812

TOP VIEW

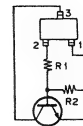


2SC1623  
2SC2712  
2SC2715  
2SC2757  
2SD1030



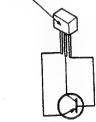
2SD1055

TOP VIEW



DTC114TU  
(R1 = 10K, R2 = ∞)  
DTC114YK  
(R1 = 10K, R2 = 47K)  
DTC144EK  
(R1 = 47K, R2 = 47K)

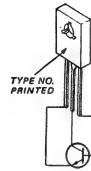
TYPE NO.  
PRINTED



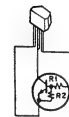
2SA1175F



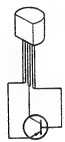
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2SD1685

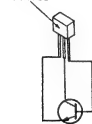


DTC144ES  
(R1 = 47K, R2 = 47K)

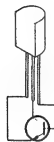


2SA844

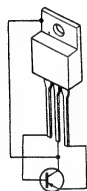
TYPE NO.  
PRINTED



2SC2785K



2SD788  
2SD789

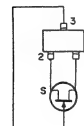


2SB553



2SC2878

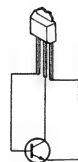
TOP VIEW



2SK94

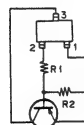


2SB733

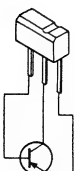


2SC3072  
2SC3326  
2SD1160

TOP VIEW



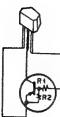
DTA114TU  
(R1 = 10K, R2 = ∞)  
DTA144EK  
(R1 = 47K, R2 = 47K)



2SB822

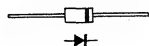


2SC403SP

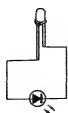


DTA144ES  
(R1 = 47K, R2 = 47K)

# DIODE



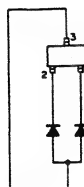
10E-2  
1S1555S



BR5505S ; RED



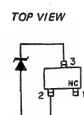
RP5551K ; RED



1S2835

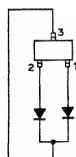


EBR3402S ; RED  
SLR-932A ; INFRARED  
TLR124 ; RED



RD ? ?MB?

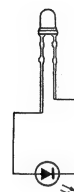
TOP VIEW



1S2837



FC54M



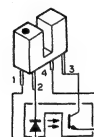
SLH-34YT3 ; YELLOW



1SS119  
1SS97-1  
1SS99  
ERA81-004  
ERB81-004

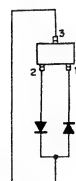


HZS ? ?L  
HZS11C2L  
RD ? ?EB ?  
RD ? ?ESB ?  
RD ? ?EL ?  
RD ? ?FB ?



TLP801A

TOP VIEW



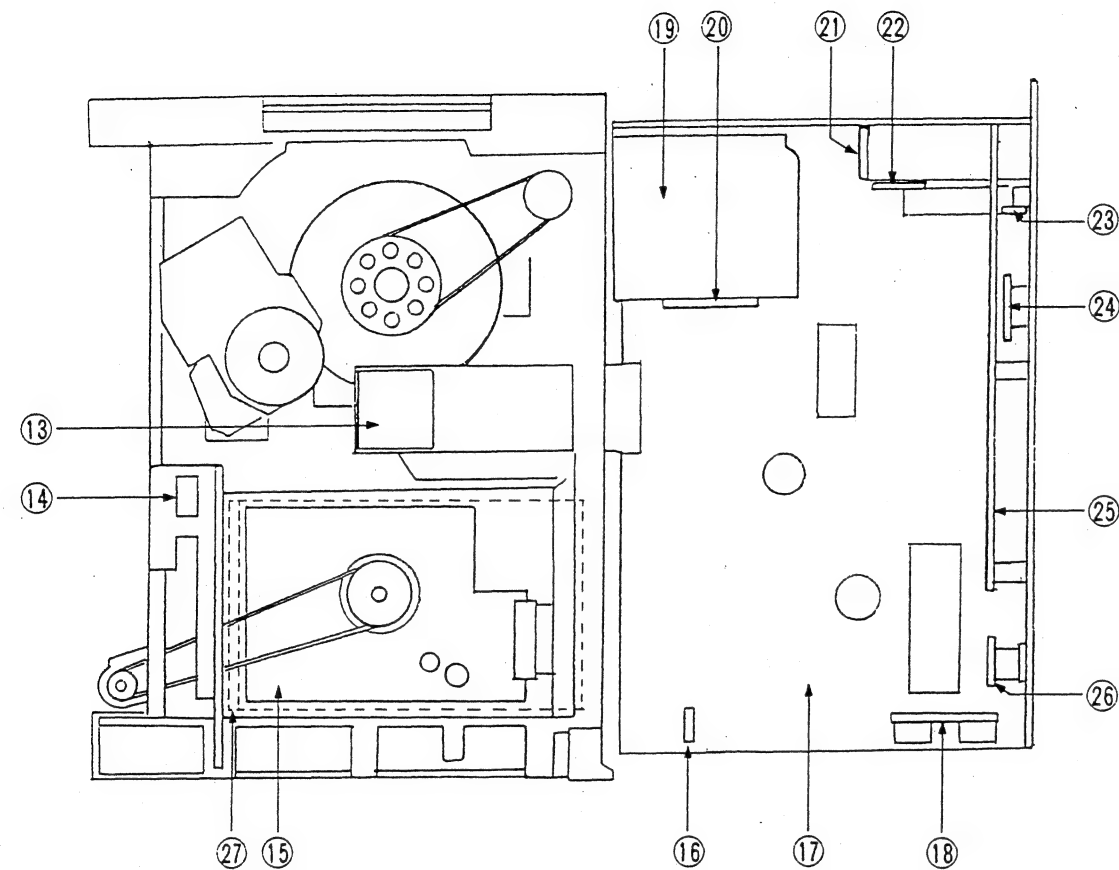
1SS123



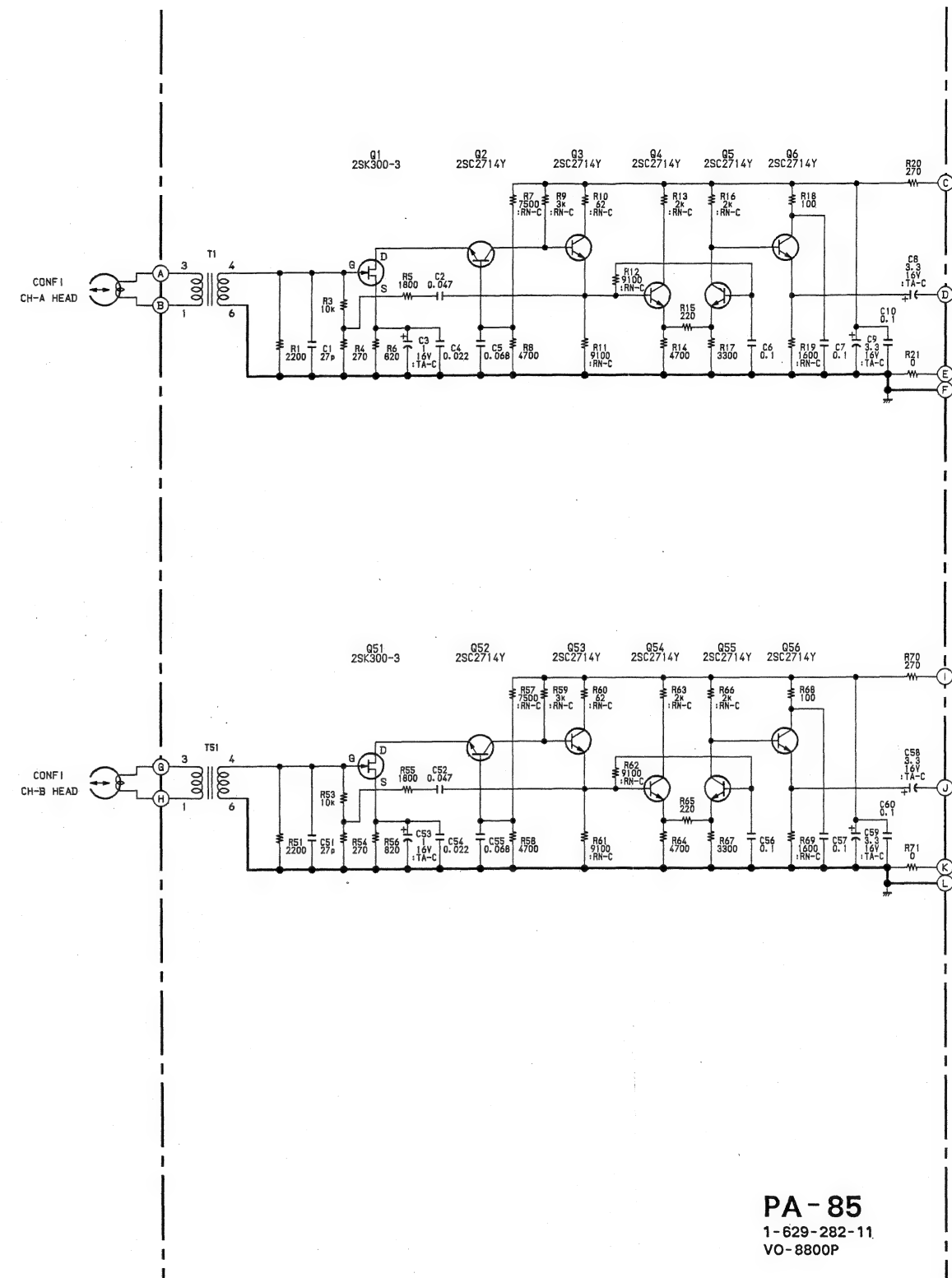
PH302B

PA - 85 : CONF1 RF PB AMPLIFIER

< BOTTOM VIEW >

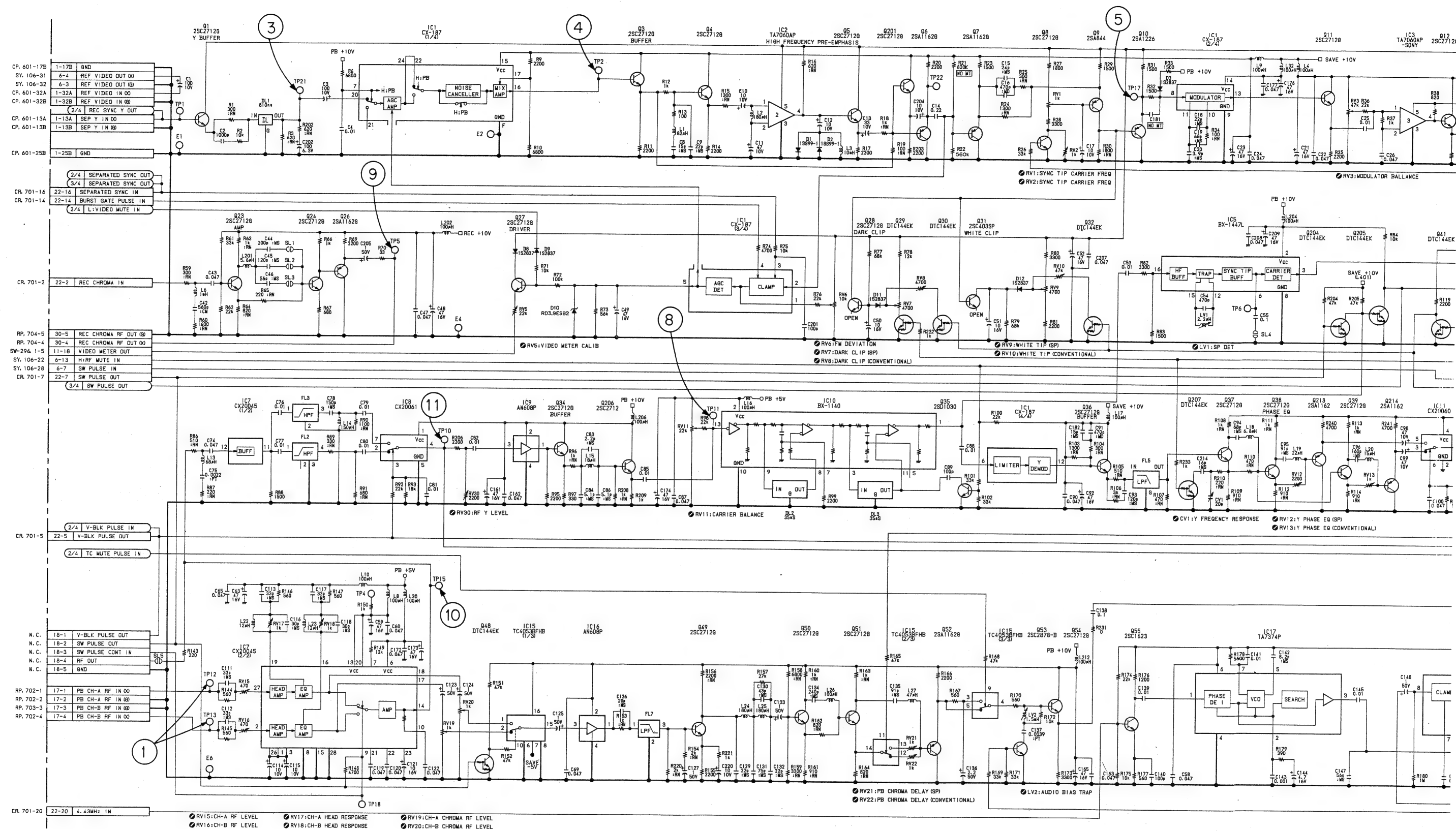


- |   |   |
|---|---|
| ⑬ RP Board  | ⑫ RMD-2 Board (For UC, J only)  |
| ⑭ BP-15 Board<br>(UC: UP TO S/N 10700)<br>(EK: UP TO S/N 10300) | ⑬ VR-85 Board   |
| ⑮ HN-102 Board  | ⑭ CM-23 Board   |
| ⑯ HP-45 Board   | ⑮ CP Board  |
| ⑰ VA Board  | ⑯ TR-54 Board   |
| ⑱ SW-296 Board  | ⑰ BP-16 Board<br>(UC: S/N 10701 AND HIGHER)<br>(EK: S/N 10301 AND HIGHER) |
| ⑲ CR Board  |   |
| ⑳ DUS-262 Board   |   |
| ㉑ CN-271 Board  |   |

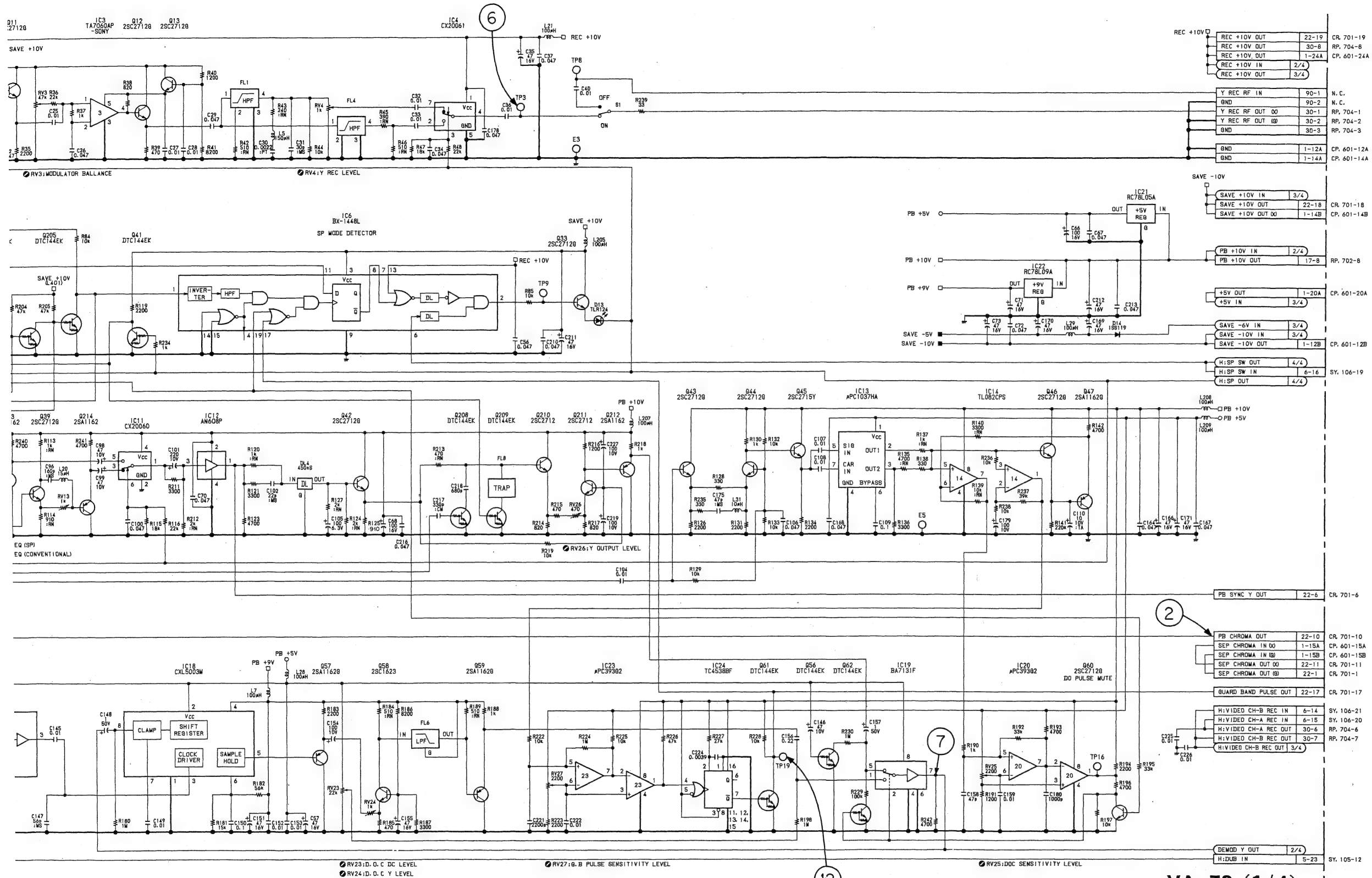


PA - 85  
1-629-282-11  
VO-8800P

VA - 76 (1/4) : Y MODULATOR/DEMOMULATOR, C RF PB

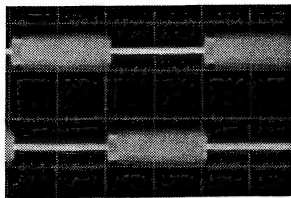




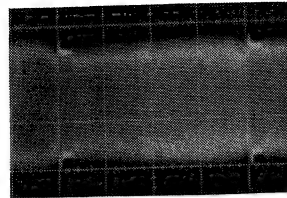


VA - 76 (1/4)  
1-629-231-11,12,13,14,15  
VO-8800P

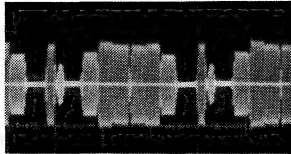
① TP12  
TP13  
PB  
TRIG; TP18  
H: 10msec/DIV  
V: 0.05V/DIV



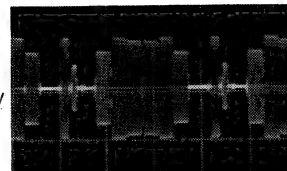
⑧ TP11  
PB  
H: 5msec/DIV  
V: 0.1V/DIV



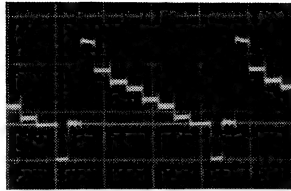
② CN22-10PIN  
PB  
H: 20μsec/DIV  
V: 0.1V/DIV



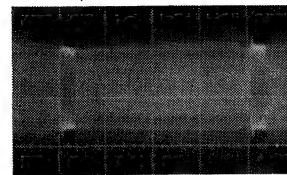
⑨ TP5  
EE  
H: 20μsec/DIV  
V: 0.5V/DIV



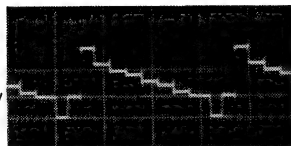
③ TP21  
EE  
H: 20μsec/DIV  
V: 0.2V/DIV



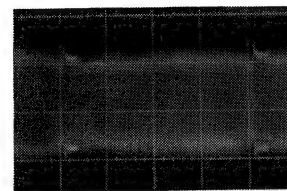
⑩ TP15  
PB  
H: 5msec/DIV  
V: 0.5V/DIV



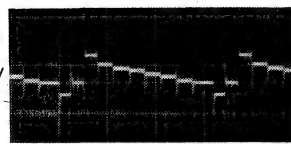
④ TP2  
EE  
H: 20μsec/DIV  
V: 0.5V/DIV



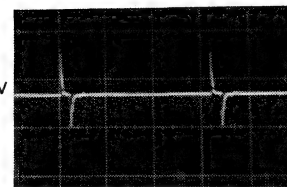
⑪ TP10  
PB  
H: 5msec/DIV  
V: 0.1V/DIV



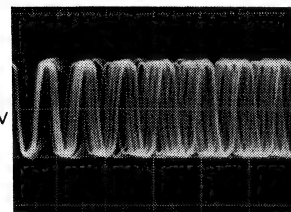
⑤ TP17  
EE  
H: 20μsec/DIV  
V: 1V/DIV



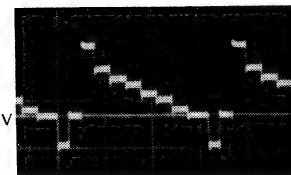
⑫ TP19  
EE  
H: 20μsec/DIV  
V: 0.5V/DIV



⑥ TP3  
EE  
H: 0.2μsec/DIV  
V: 0.2V/DIV



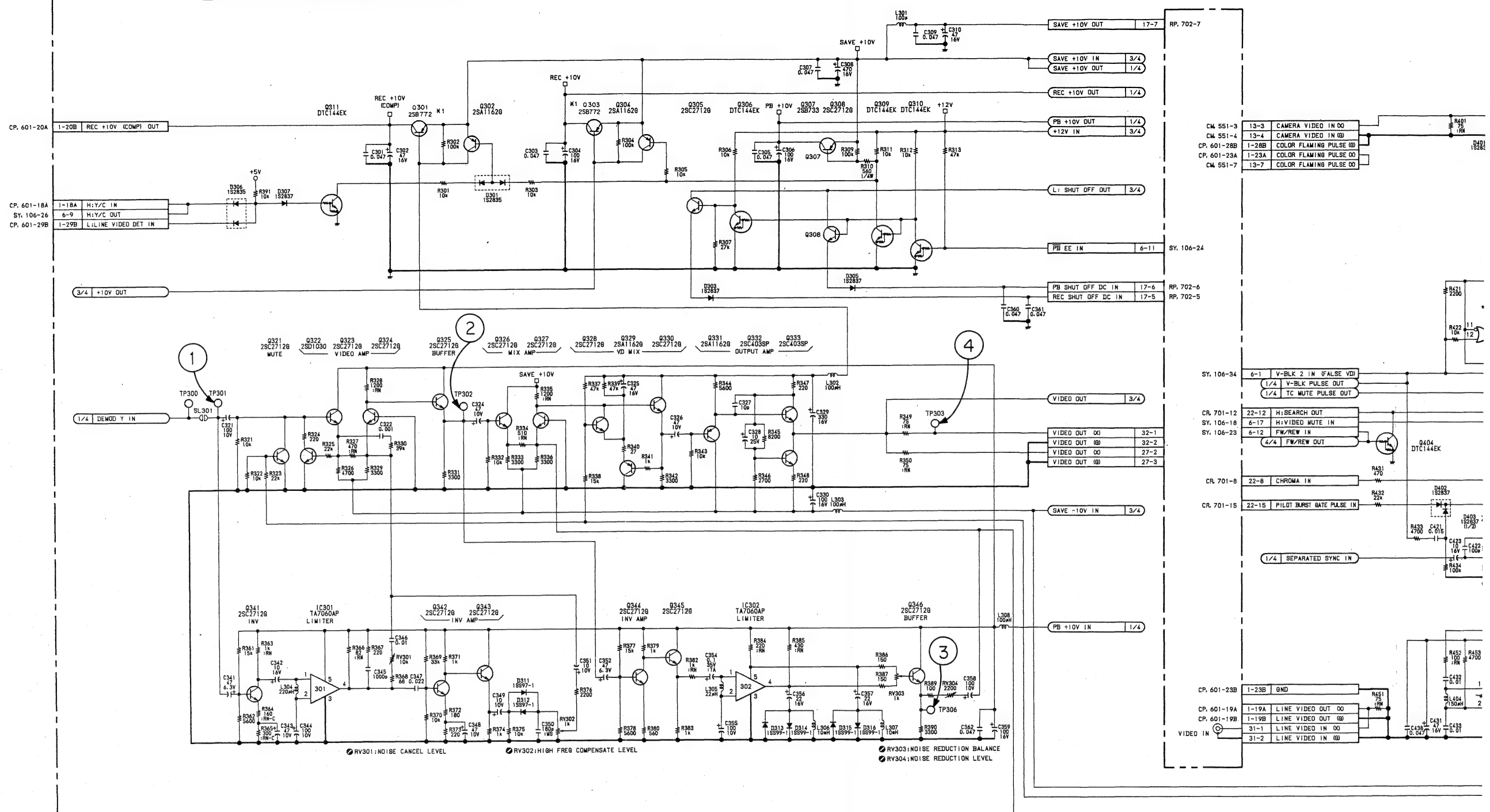
⑦ IC19-7PIN  
PB  
H: 20μsec/DIV  
V: 0.2V/DIV

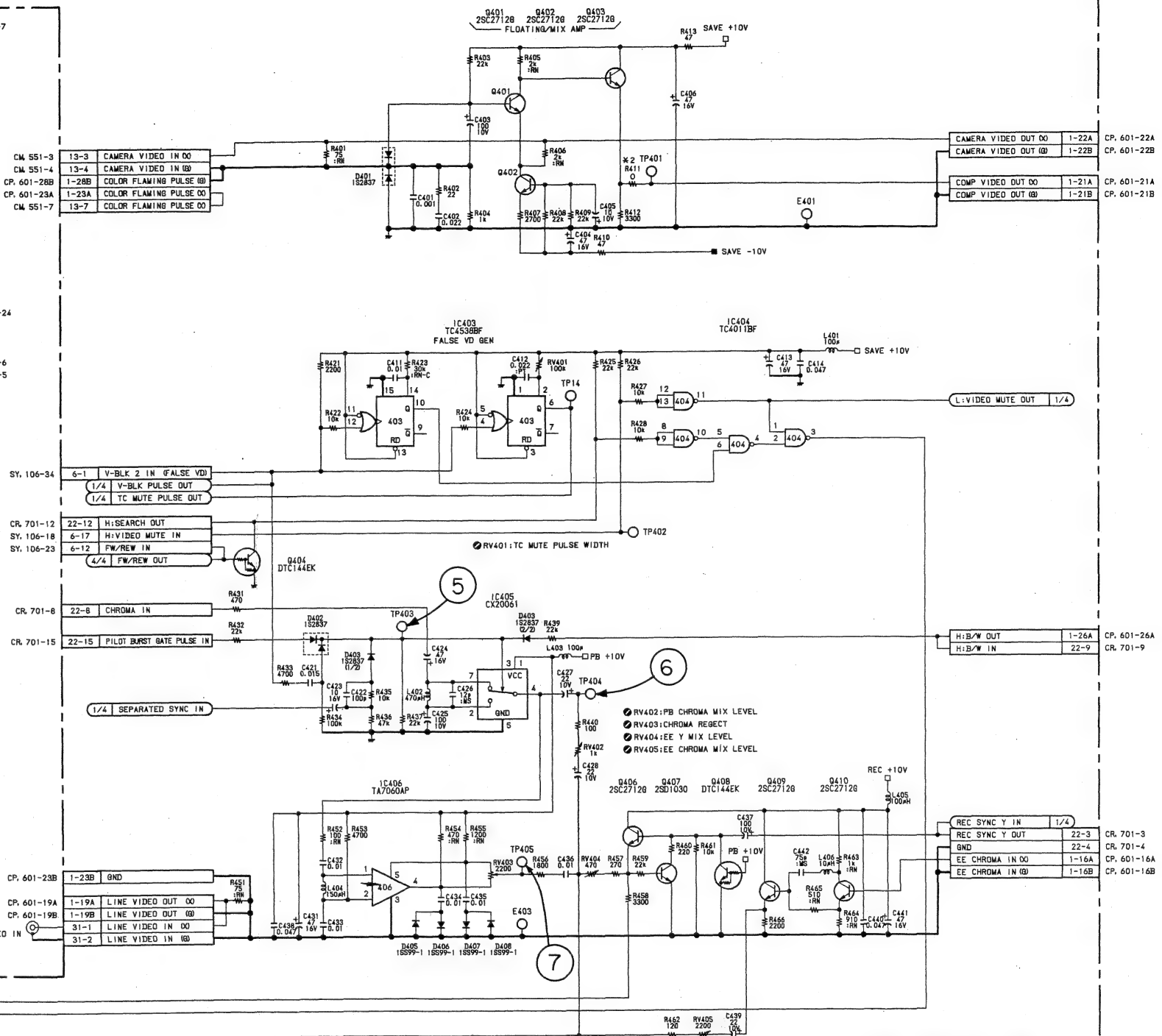
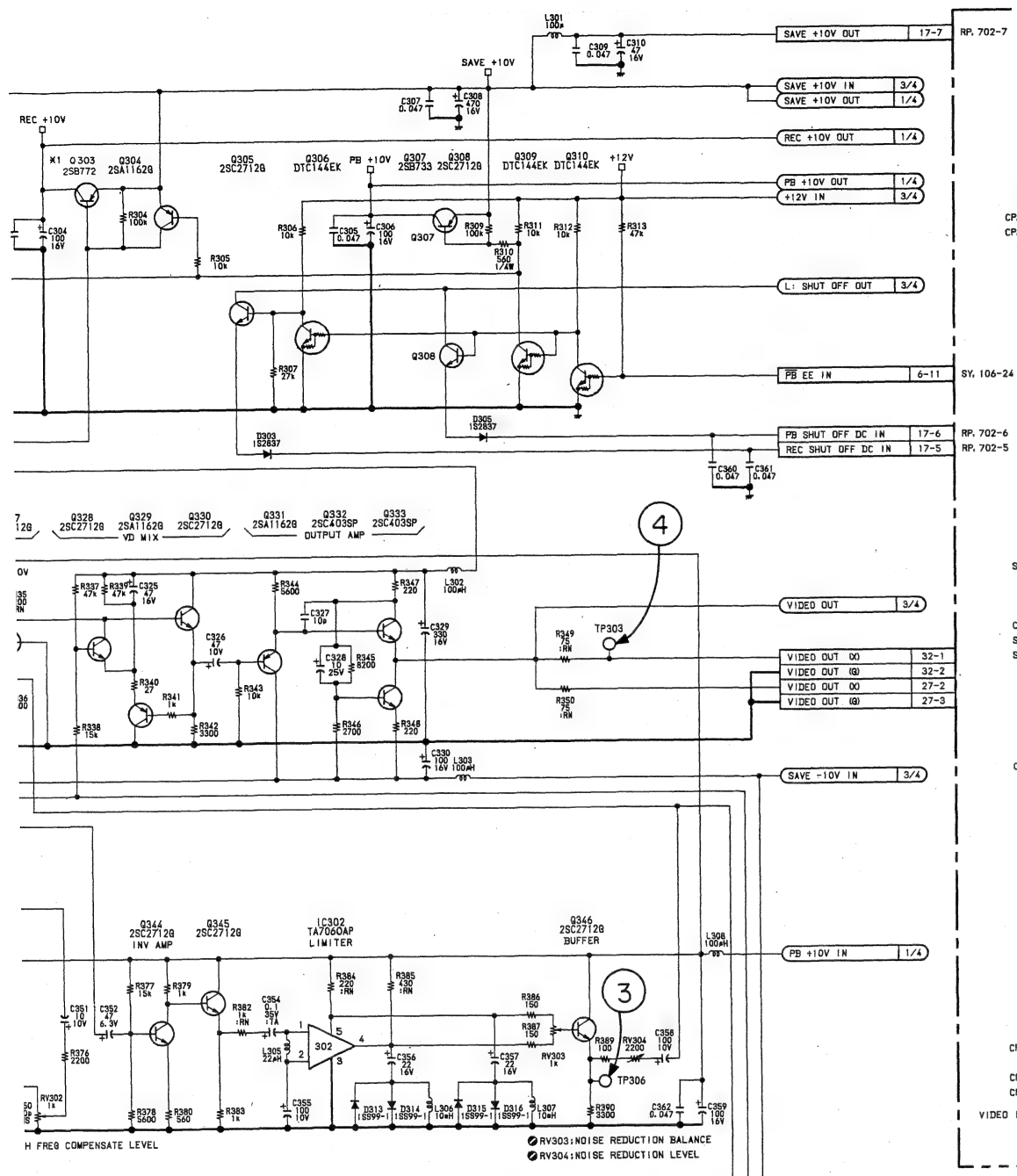


VA - 76 (2/4) : Y/C MIX, VIDEO OUTPUT

NOTE

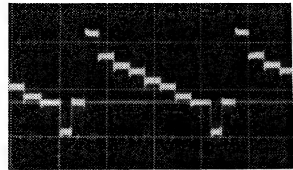
MARK	CHANGE INFORMATION	SERIAL NO.
#1	Q301, 302 2SB733 → 2SB772	S/N 10651 ~
#2	R411 33 → 0	S/N 11451 ~



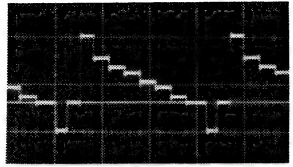


**VA-76 (2/4)**  
1-629-231-11,12,13,14,15  
VO-8800P

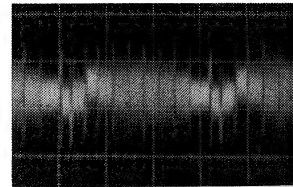
① TP301  
PB  
H; 20  $\mu$ sec/DIV  
V; 0.2V/DIV



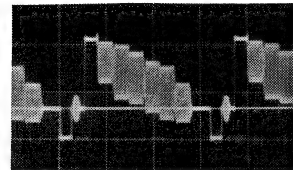
② TP302  
PB  
H; 20  $\mu$ sec/DIV  
V; 0.5V/DIV



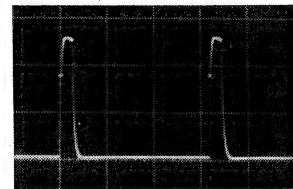
③ TP306  
PB  
H; 20  $\mu$ sec/DIV  
V; 0.02V/DIV



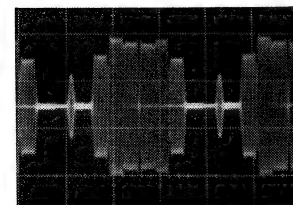
④ TP303  
EE  
H; 20  $\mu$ sec/DIV  
V; 1V/DIV



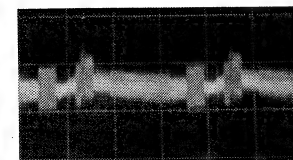
⑤ TP403  
PB  
H; 20  $\mu$ sec/DIV  
V; 2V/DIV



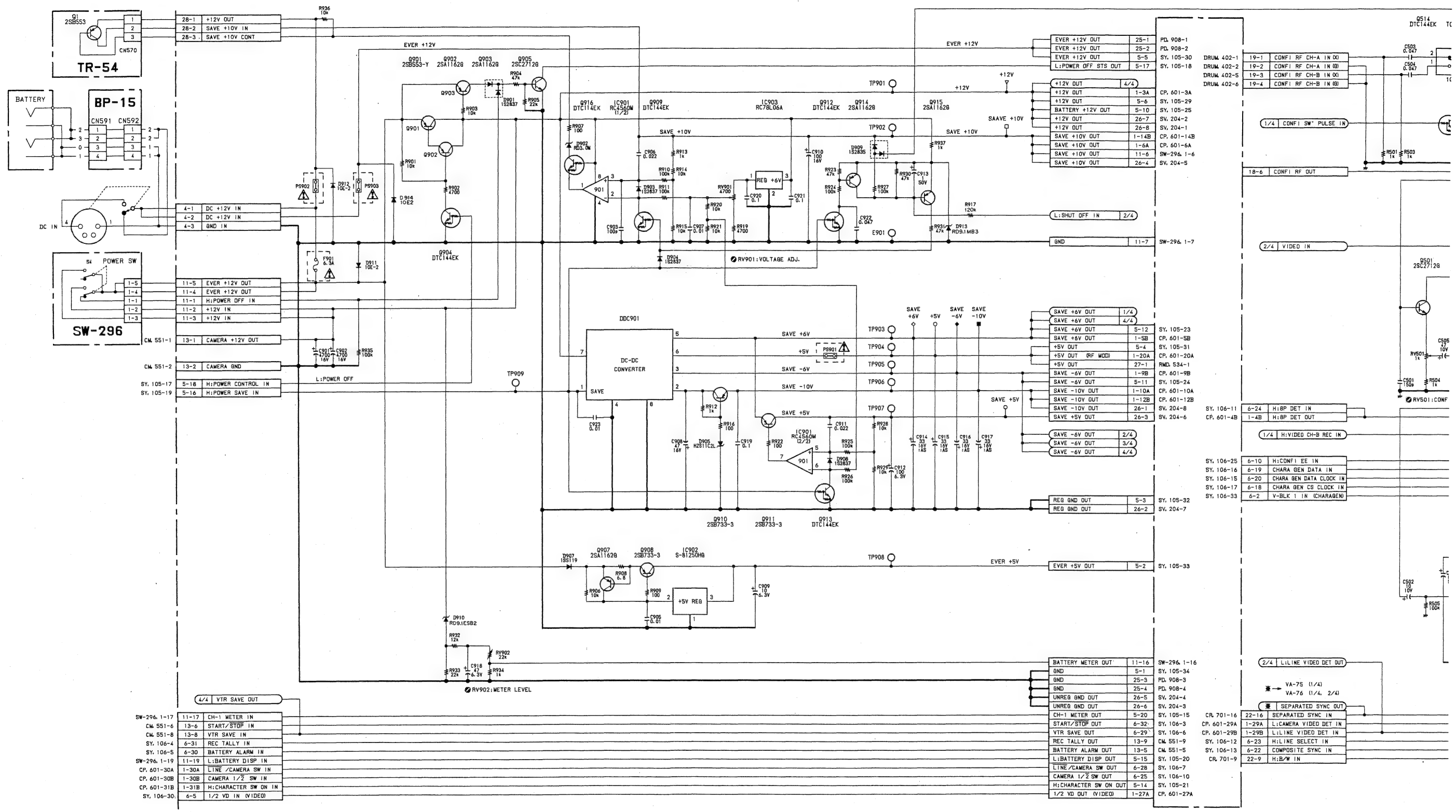
⑥ TP404  
PB  
H; 20  $\mu$ sec/DIV  
V; 0.2V/DIV

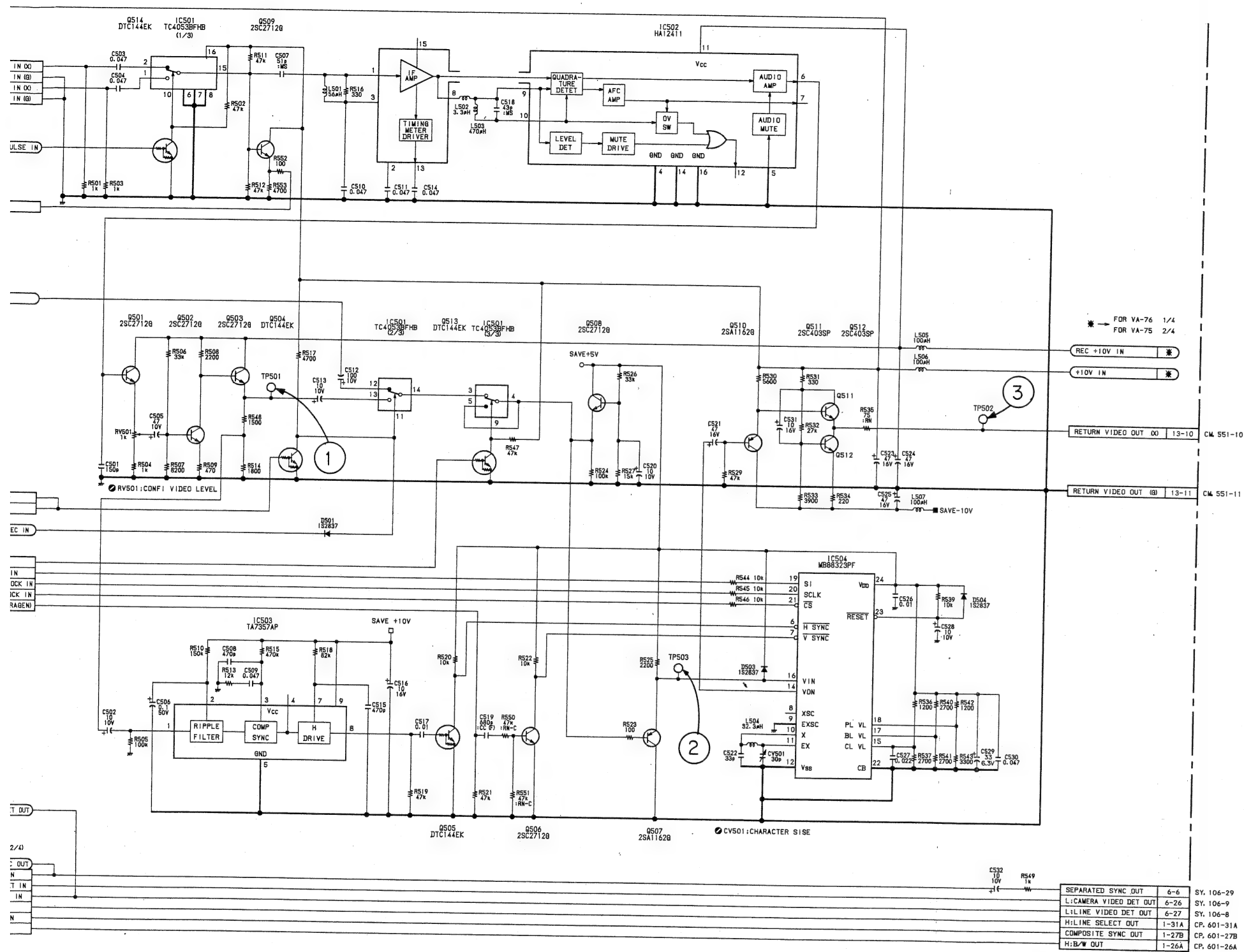


⑦ TP405  
PB  
H; 20  $\mu$ sec/DIV  
V; 0.02V/DIV



VA - 76 (3/4) : VIDEO CONF, CHARACTER  
DC - DC CONVERTER, REGULATOR

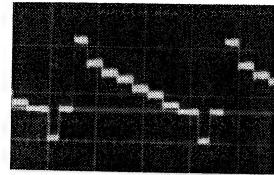




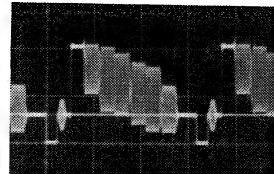
NOTE:

The  $\Delta$ -marked components are critical to safety.  
Replace only with same components as specified.

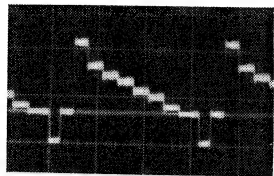
① TP501  
REC  
H; 20 $\mu$ sec/DIV  
V; 1V/DIV



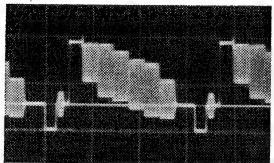
② TP503  
PB  
H; 20 $\mu$ sec/DIV  
V; 1V/DIV



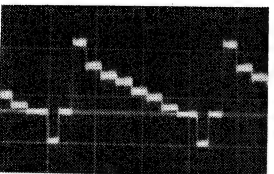
TP503  
REC  
H; 20 $\mu$ sec/DIV  
V; 1V/DIV



③ TP502  
PB  
H; 20 $\mu$ sec/DIV  
V; 1V/DIV

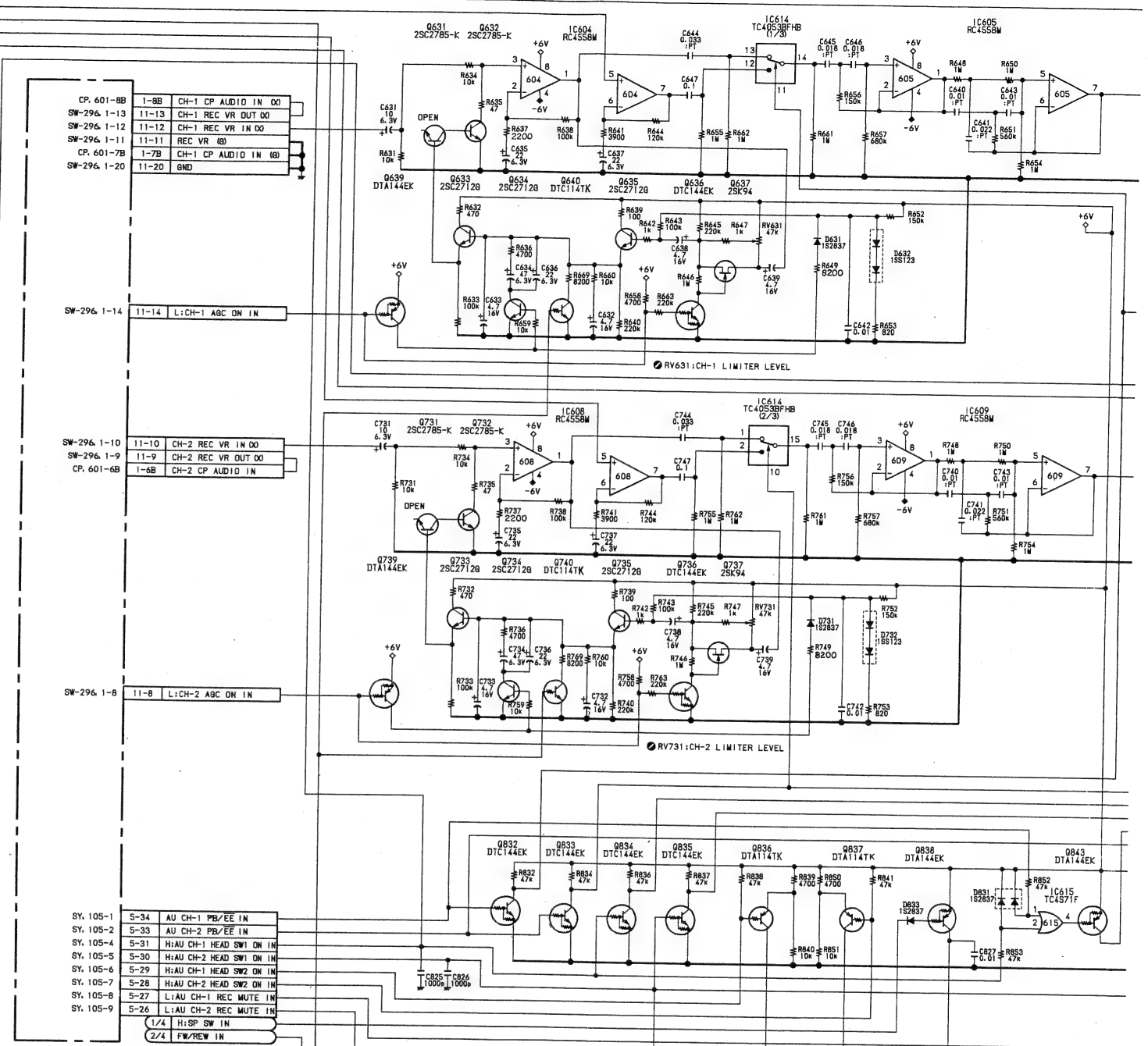
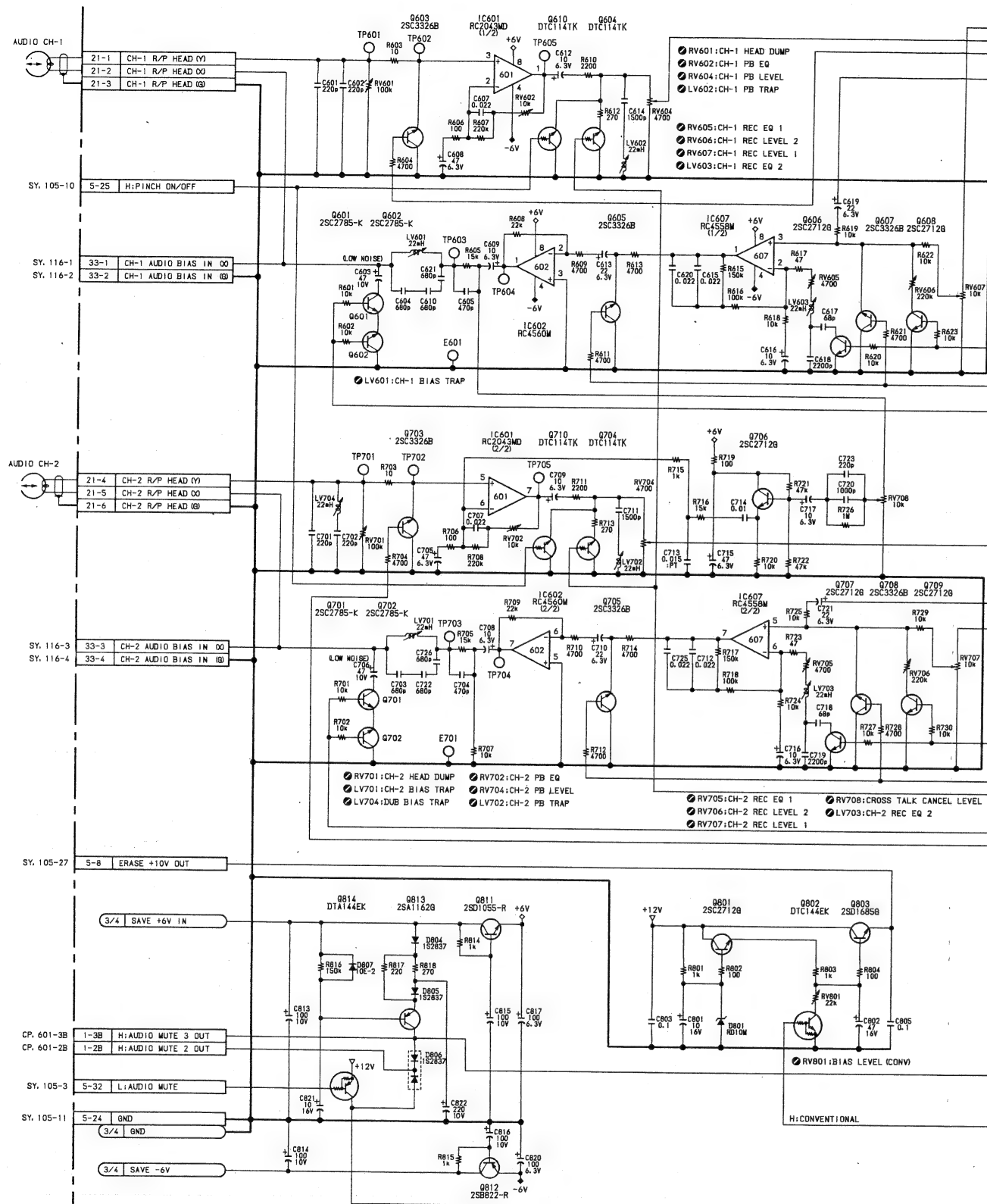


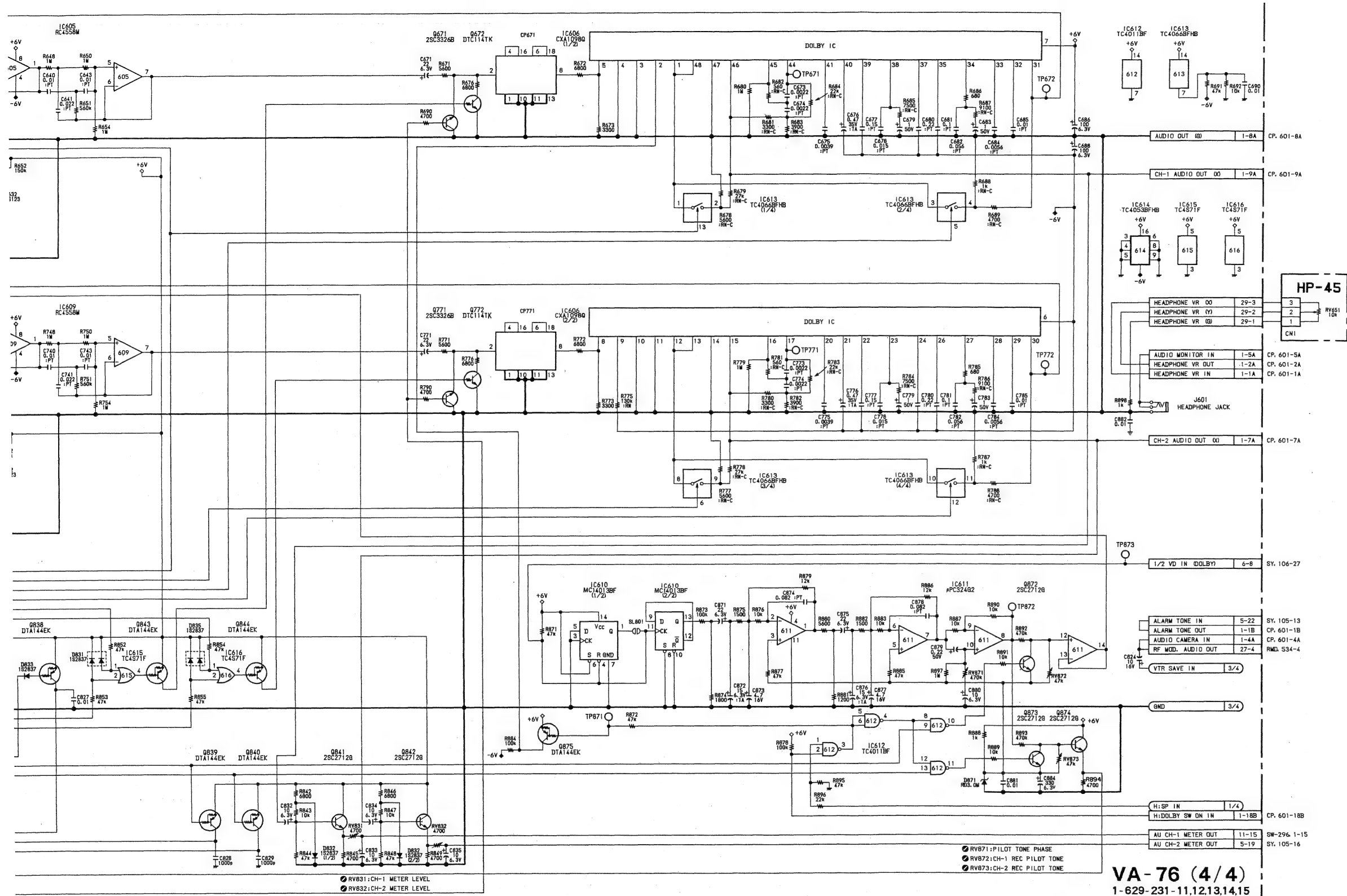
TP502  
REC  
H; 20 $\mu$ sec/DIV  
V; 1V/DIV





VA - 76 (4/4) : AUDIO REC/PB AMPLIFIER, DOLBY, PILOT TONE





**VA-76 (4/4)**  
1-629-231-11,12,13,14,15  
VO-8800P

## VA - 76 : Y/C MIX, Y MODULATOR/DEMODULATOR, C RF PB, VIDEO OUTPUT

## REC/PB AMPLIFIER, DOLBY, PILOT TONE

## DC - DC CONVERTER, REGULATOR

VA-76 (1-629-231-11, 12, 13, 14, 15)

CN1	A-8 C	D804	M-1 S	IC403	A-1 C	Q47	H-6 S	Q507	B-2 S	Q901	M-9 S	RV872	L-7 C
CN501	E-9 C	D805	L-1 S	IC404	A-2 C	Q48	G-2 S	Q508	A-3 S	Q902	K-9 S	RV873	K-7 C
CN504	J-8 C	D806	L-1 S	IC405	D-7 C	Q49	E-3 S	Q509	A-3 S	Q903	J-9 S	RV901	L-7 C
CN505	F-1 C	D807	L-1 C	IC406	C-8 C	Q50	F-3 S	Q510	B-3 S	Q904	J-9 S	RV902	M-8 C
CN506	C-1 C	D831	G-1 S	IC501	A-3 C	Q51	F-2 S	Q511	C-3 C	Q905	J-9 C	RV903	E-1 C
CN513	D-9 C	D832	M-7 S	IC502	B-3 C	Q52	G-2 S	Q512	C-3 C	Q907	F-1 C		
CN514	H-1 C	D833	H-1 S	IC503	C-2 C	Q53	G-3 C	Q513	A-3 S	Q908	E-1 S	S1	D-2 C
CN517	G-1 C	D835	G-1 S	IC504	B-2 C	Q54	G-3 S	Q514	A-2 S	Q909	L-8 S		
CN518	H-2 C	D871	K-6 S	IC601	K-2 C	Q55	B-4 S	Q601	J-2 C	Q910	K-9 C	TP1	G-5 C
CN519	A-3 C	D901	J-9 S	IC602	M-2 C	Q56	B-5 S	Q602	J-2 C	Q911	M-7 C	TP2	E-5 C
CN520	G-1 C	D902	L-8 S	IC604	J-4 C	Q57	A-5 S	Q603	K-2 S	Q912	K-8 S	TP3	D-2 C
CN521	K-1 C	D903	L-8 S	IC605	J-5 C	Q58	A-4 S	Q604	J-3 S	Q913	M-8 S	TP4	H-2 C
CN525	J-1 C	D904	K-8 S	IC606	M-4 C	Q59	A-4 S	Q605	M-3 S	Q914	K-8 S	TP5	D-2 C
CN526	A-3 C	D905	K-8 C	IC607	L-3 C	Q60	H-7 S	Q606	M-3 S	Q915	K-8 S	TP6	G-8 C
CN527	B-7 C	D907	F-1 C	IC608	K-4 C	Q61	H-7 S	Q607	L-3 S	Q916	L-8 S	TP8	C-2 C
CN528	L-9 C	D908	M-7 S	IC609	K-5 C	Q62	B-5 S	Q608	M-3 S			TP9	G-9 C
CN530	D-2 C	D909	K-8 S	IC610	K-6 C	Q201	E-4 S	Q610	K-3 S	RV1	E-4 S	TP10	H-4 C
CN531	D-9 C	D910	M-9 C	IC611	L-7 C	Q204	B-1 S	Q631	J-4 C	RV2	D-5 C	TP11	G-6 C
CN532	C-9 C	D911	M-9 C	IC612	K-7 C	Q205	B-1 S	Q632	J-3 C	RV3	D-4 C	TP12	H-2 C
CN533	J-1 C	D912	M-9 C	IC613	M-5 C	Q206	G-6 S	Q633	K-4 S	RV4	D-3 S	TP13	H-2 C
CN561	B-8 C	D913	L-8 S	IC614	K-4 C	Q207	E-6 S	Q634	K-4 S	RV5	F-6 S	TP14	B-1 C
CN562	B-8 C	D914	F-1 C	IC615	G-1 S	Q208	D-4 S	Q635	K-4 S	RV6	F-6 S	TP15	H-3 C
CN590	C-2 S	D915	M-9 S	IC616	G-1 S	Q209	D-4 S	Q636	K 5 S	RV7	E 6 S	TP16	H-7 C
		D916	E-1 C	IC901	M-7 C	Q210	D-4 S	Q637	K-5 S	RV8	D-6 S	TP17	E-5 C
				IC902	E-1 C	Q211	C-4 S	Q639	K-4 S	RV9	D-5 S	TP18	G-2 C
CP671	M-6 C			IC903	L-7 C	Q212	C-5 S	Q640	K-4 S	RV10	E-5 S	TP19	G-4 C
CP771	L-6 C	E1	J-8 C			Q213	D-6 S	Q671	M-6 S	RV11	G-6 S	TP21	F-5 C
		E2	F-5 C			Q214	D-6 S	Q672	M-6 S	RV12	D-6 S	TP22	E-4 C
CV1	E-6 C	E3	C-3 C	J601	M-1 C	Q301	E-8 C	Q701	K-2 C	RV13	D-6 C	TP300	A-5 C
CV502	B-2 C	E4	E-2 C			Q302	E-8 S	Q702	K-2 C	RV15	H-2 C	TP301	A-5 C
		E5	G-6 C	LV1	J-8 C	Q303	E-7 C	Q703	K-2 S	RV16	H-2 S	TP302	B-6 C
DDC901	L-7 C	E6	G-3 C	LV2	G-3 C	Q304	E-7 S	Q704	K-3 S	RV17	G-4 S	TP303	C-8 C
		E301	A-5 C	LV601	L-2 C	Q305	F-7 S	Q705	L-2 S	RV18	G-3 S	TP306	C-6 C
DL1	G-4 C	E401	B-7 C	LV602	J-3 C	Q306	F-7 S	Q706	K-2 S	RV19	G-3 S	TP401	A-7 C
DL2	F-6 C	E403	D-9 C	LV603	M-3 C	Q307	E-7 C	Q707	L-3 S	RV20	G-2 S	TP402	B-2 C
DL3	F-7 C	E601	M-2 C	LV701	L-2 C	Q308	F-7 S	Q708	L-3 S	RV21	F-2 S	TP403	D-3 C
DL4	D-5 C	E701	L-2 C	LV702	K-3 C	Q309	F-7 S	Q709	L-3 S	RV22	F-3 S	TP404	D-7 C
		E901	K-8 C	LV703	L-3 C	Q310	E-7 S	Q710	K-3 S	RV23	A-4 S	TP405	C-7 C
				LV704	K-2 C	Q311	E-8 S	Q731	K-4 C	RV24	A-5 C	TP501	A-3 C
D1	E-4 C					Q321	A-6 S	Q732	K-3 C	RV25	H-7 C	TP502	C-7 C
D2	E-4 C	FL1	D-4 C	Q1	G-4 S	Q322	A-6 S	Q733	K-3 S	RV26	C-4 S	TP503	A-2 C
D3	E-5 S	FL2	H-4 C	Q3	E-5 S	Q323	A-6 S	Q734	K-4 S	RV27	G-7 S	TP601	J-2 C
D8	F-7 S	FL3	H-4 C	Q4	E-5 S	Q324	A-6 S	Q735	L-4 S	RV30	H-5 S	TP602	J-2 C
D9	F-7 S	FL4	D-3 C	Q5	E-4 S	Q325	B-6 S	Q736	L-5 S	RV301	A-5 S	TP603	M-2 C
D10	F-6 C	FL5	E-7 C	Q6	E-4 S	Q326	B-6 S	Q737	K-5 S	RV302	B-5 S	TP604	M-2 C
D11	E-5 S	FL6	A-4 C	Q7	E-4 S	Q327	B-6 S	Q739	L-4 S	RV303	B-6 S	TP605	K-3 C
D12	E-5 S	FL7	F-2 C	Q8	E-5 S	Q328	B-6 S	Q740	L-4 S	RV304	C-6 S	TP671	M-5 C
D13	G-9 C	FL8	C-4 C	Q9	E-5 C	Q329	C-7 S	Q771	L-6 S	RV401	A-1 S	TP672	M-4 C
D14	D-1 C			Q10	E-5 S	Q330	C-6 S	Q772	M-6 S	RV402	D-7 S	TP701	K-2 C
D301	F-8 S	IC1	F-5 C	Q11	D-4 S	Q331	C-7 S	Q801	K-7 S	RV403	C-7 S	TP702	K-2 C
D303	F-7 S	IC2	E-5 C	Q12	D-4 S	Q332	C-7 C	Q802	K-8 S	RV404	E-7 S	TP703	L-2 C
D305	F-7 S	IC3	D-4 C	Q13	C-4 S	Q333	C-6 C	Q803	J-8 C	RV405	D-7 C	TP704	L-2 C
D306	E-8 S	IC4	D-3 C	Q23	D-2 S	Q341	A-5 S	Q811	L-1 C	RV501	B-3 C	TP705	K-3 C
D307	E-8 S	IC5	H-8 C	Q24	D-3 S	Q342	B-5 S	Q812	L-2 C	RV601	K-1 C	TP771	L-5 C
D311	B-6 C	IC6	H-9 C	Q26	D-2 S	Q343	B-6 S	Q813	L-1 S	RV602	J-2 S	TP772	L-4 C
D312	B-5 C	IC7	H-2 C	Q27	F-6 S	Q344	B-5 S	Q814	L-1 S	RV604	K-3 S	TP871	J-6 C
D313	C-5 C	IC8	H-4 C	Q28	D-5 S	Q345	B-5 S	Q832	H-1 S	RV605	M-3 S	TP872	K-7 C
D314	C-5 C	IC9	H-5 C	Q29	E-6 S	Q346	C-6 S	Q833	H-1 S	RV606	M-3 S	TP873	J-6 C
D315	C-6 C	IC10	G-6 C	Q31	E-5 C	Q401	A-7 S	Q834	J-1 S	RV607	M-3 S	TP901	L-7 C
D316	C-6 C	IC11	D-6 C	Q32	E-5 S	Q402	A-7 S	Q835	K-1 S	RV631	K-5 S	TP902	K-9 C
D401	B-7 S	IC12	D-5 C	Q33	G-9 S	Q403	A-7 S	Q836	J-1 S	RV651	A-8 S	TP903	L-9 C
D402	D-3 S	IC13	H-6 C	Q34	H-5 S	Q404	B-1 S	Q837	K-1 S	RV701	K-2 S	TP904	K-9 C
D403	D-3 S	IC14	H-6 C	Q35	G-7 S	Q406	D-7 S	Q838	H-1 S	RV702	K-3 S	TP905	H-8 C
D405	C-8 C	IC15	F-2 C	Q36	E-6 S	Q407	D-8 S	Q839	K-1 S	RV704	K-3 S	TP906	F-8 C
D406	C-8 C	IC16	F-2 C	Q37	E-7 S	Q408	D-7 S	Q840	K-1 S	RV705	L-3 S	TP907	M-7 C
D407	C-7 C	IC17	B-4 C	Q38	D-7 S	Q409	D-8 S	Q841	M-7 S	RV706	L-3 S	TP908	E-1 C
D408	C-7 C	IC18	B-5 C	Q39	D-7 S	Q410	D-8 S	Q842	M-7 S	RV707	L-3 S	TP909	J-7 C
D501	A-3 S	IC19	A-5 C	Q41	E-6 S	Q501	B-3 S	Q843	H-1 S	RV708	L-2 S		
D503	B-3 S	IC20	H-7 C	Q42	D-5 S	Q502	B-3 S	Q844	H-1 S	RV731	K-5 S	** C: COMPONENT SIDE	
D504	B-2 S	IC21	G-6 C	Q43	H-6 S	Q503	A-3 S	Q872	L-7 S	RV801	K-7 S	** S: SOLDERING SIDE	
D631	K-5 S	IC22	B-4 C	Q44	G-6 S	Q504	A-3 S	Q873	K-7 S	RV831	M-7 S		
D632	K-5 S	IC23	G-7 C	Q45	H-6 S	Q505	C-2 S	Q874	K-7 S	RV832	M-7 S		
D731	K-5 S	IC24	G-7 C	Q46	H-6 S	Q506	B-2 S	Q875	J-7 S	RV871	M-7 S		
D732	L-5 S	IC301	A-5 C										
D801	K-8 S	IC302	C-5 C										

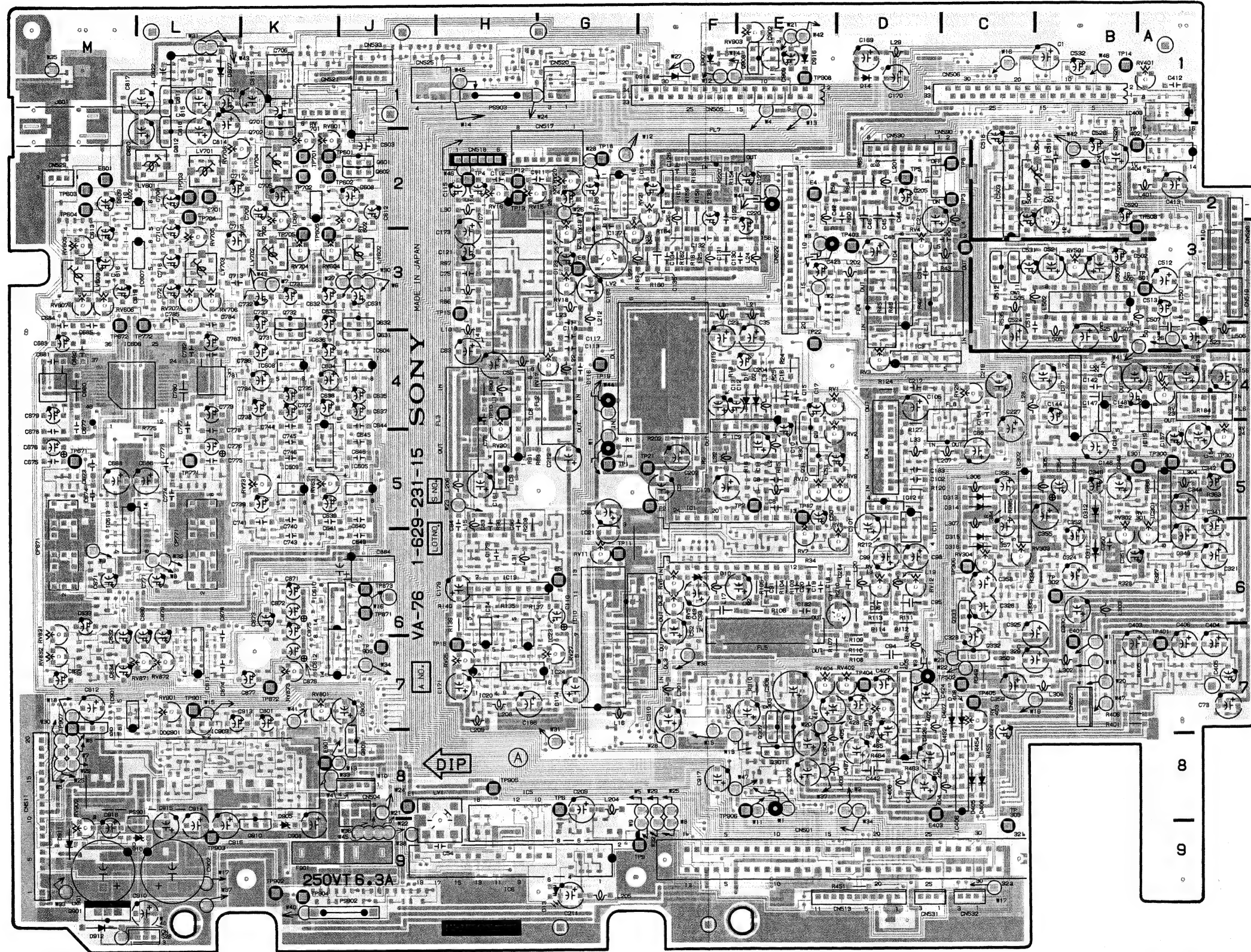


L-7 C  
K-7 C  
L-7 C  
M-8 C  
E-1 C

D-2 C

G-5 C  
E-5 C  
D-2 C  
H-2 C  
D-2 C  
G-8 C  
C-2 C  
G-9 C  
H-4 C  
G-6 C  
H-2 C  
H-2 C  
B-1 C  
H-3 C  
H-7 C  
E-5 C  
G-2 C  
G-4 C  
F-5 C  
E-4 C  
A-5 C  
A-5 C  
B-6 C  
C-8 C  
C-6 C  
A-7 C  
B-2 C  
D-3 C  
D-7 C  
C-7 C  
A-3 C  
C-7 C  
A-2 C  
J-2 C  
J-2 C  
M-2 C  
M-2 C  
K-3 C  
M-5 C  
M-4 C  
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L-2 C  
K-3 C  
L-5 C  
L-4 C  
J-6 C  
K-7 C  
J-6 C  
L-7 C  
K-9 C  
L-9 C  
K-9 C  
H-8 C  
F-8 C  
M-7 C  
E-1 C  
J-7 C

COMPONENT SIDE  
SOLDERING SIDE



VA-76 - COMPONENT SIDE -  
1-629-231-11, 12, 13, 14, 15  
VO-8800P

## VA - 76 : Y/C MIX, Y MODULATOR/DEMODULATOR, C RF PB, VIDEO OUTPUT

REC/PB AMPLIFIER, DOLBY, PILOT TONE

DC - DC CONVERTER, REGULATOR

VA-76 (1-629-231-11, 12, 13, 14, 15)

CN1	A-8 C	D804	M-1 S	IC403	A-1 C	Q47	H-6 S	Q507	B-2 S	Q901	M-9 S	RV872	L-7 C
CN501	E-9 C	D805	L-1 S	IC404	A-2 C	Q48	G-2 S	Q508	A-3 S	Q902	K-9 S	RV873	K-7 C
CN504	J-8 C	D806	L-1 S	IC405	D-7 C	Q49	E-3 S	Q509	A-3 S	Q903	J-9 S	RV901	L-7 C
CN505	F-1 C	D807	L-1 C	IC406	C-8 C	Q50	F-3 S	Q510	B-3 S	Q904	J-9 S	RV902	M-8 C
CN506	C-1 C	D831	G-1 S	IC501	A-3 C	Q51	F-2 S	Q511	C-3 C	Q905	J-9 C	RV903	E-1 C
CN513	D-9 C	D832	M-7 S	IC502	B-3 C	Q52	G-2 S	Q512	C-3 C	Q907	F-1 C		
CN514	H-1 C	D833	H-1 S	IC503	C-2 C	Q53	G-3 C	Q513	A-3 S	Q908	E-1 S	S1	D-2 C
CN517	G-1 C	D835	G-1 S	IC504	B-2 C	Q54	G-3 S	Q514	A-2 S	Q909	L-8 S		
CN518	H-2 C	D871	K-6 S	IC601	K-2 C	Q55	B-4 S	Q601	J-2 C	Q910	K-9 C	TP1	G-5 C
CN519	A-3 C	D901	J-9 S	IC602	M-2 C	Q56	B-5 S	Q602	J-2 C	Q911	M-7 C	TP2	E-5 C
CN520	G-1 C	D902	L-8 S	IC604	J-4 C	Q57	A-5 S	Q603	K-2 S	Q912	K-8 S	TP3	D-2 C
CN521	K-1 C	D903	L-8 S	IC605	J-5 C	Q58	A-4 S	Q604	J-3 S	Q913	M-8 S	TP4	H-2 C
CN525	J-1 C	D904	K-8 S	IC606	M-4 C	Q59	A-4 S	Q605	M-3 S	Q914	K-8 S	TP5	D-2 C
CN526	A-3 C	D905	K-8 C	IC607	L-3 C	Q60	H-7 S	Q606	M-3 S	Q915	K-8 S	TP6	G-8 C
CN527	B-7 C	D907	F-1 C	IC608	K-4 C	Q61	H-7 S	Q607	L-3 S	Q916	L-8 S	TP8	C-2 C
CN528	L-9 C	D908	M-7 S	IC609	K-5 C	Q62	B-5 S	Q608	M-3 S			TP9	G-9 C
CN530	D-2 C	D909	K-8 S	IC610	K-6 C	Q201	E-4 S	Q610	K-3 S	RV1	E-4 S	TP10	H-4 C
CN531	D-9 C	D910	M-9 C	IC611	L-7 C	Q204	B-1 S	Q631	J-4 C	RV2	D-5 C	TP11	G-6 C
CN532	C-9 C	D911	M-9 C	IC612	K-7 C	Q205	B-1 S	Q632	J-3 C	RV3	D-4 C	TP12	H-2 C
CN533	J-1 C	D912	M-9 C	IC613	M-5 C	Q206	G-6 S	Q633	K-4 S	RV4	D-3 S	TP13	H-2 C
CN561	B-8 C	D913	L-8 S	IC614	K-4 C	Q207	E-6 S	Q634	K-4 S	RV5	F-6 S	TP14	B-1 C
CN562	B-8 C	D914	F-1 C	IC615	G-1 S	Q208	D-4 S	Q635	K-4 S	RV6	F-6 S	TP15	H-3 C
CN590	C-2 S	D915	M-9 S	IC616	G-1 S	Q209	D-4 S	Q636	K-5 S	RV7	E-6 S	TP16	H-7 C
		D916	E-1 C	IC901	M-7 C	Q210	D-4 S	Q637	K-5 S	RV8	D-6 S	TP17	E-5 C
CP671	M-6 C			IC902	E-1 C	Q211	C-4 S	Q639	K-4 S	RV9	D-5 S	TP18	G-2 C
CP771	L-6 C			IC903	L-7 C	Q212	C-5 S	Q640	K-4 S	RV10	E-5 S	TP19	G-4 C
		E1	J-8 C			Q213	D-6 S	Q671	M-6 S	RV11	G-6 S	TP21	F-5 C
CV1	E-6 C	E2	F-5 C	J601	M-1 C	Q214	D-6 S	Q672	M-6 S	RV12	D-6 S	TP22	E-4 C
CV502	B-2 C	E3	C-3 C			Q301	E-8 C	Q701	K-2 C	RV13	D-6 C	TP300	A-5 C
		E4	E-2 C	LV1	J-8 C	Q302	E-8 S	Q702	K-2 C	RV15	H-2 C	TP301	A-5 C
DDC901	L-7 C	E5	G-6 C	LV2	G-3 C	Q303	E-7 C	Q703	K-2 S	RV16	H-2 C	TP302	B-6 C
		E6	G-3 C	LV601	L-2 C	Q304	E-7 S	Q704	K-3 S	RV17	G-4 S	TP303	C-8 C
DL1	G-4 C	E301	A-5 C	LV602	J-3 C	Q305	F-7 S	Q705	L-2 S	RV18	G-3 S	TP306	C-6 C
DL2	F-6 C	E403	D-9 C	LV603	M-3 C	Q306	F-7 S	Q706	K-2 S	RV19	G-3 S	TP401	A-7 C
DL3	F-7 C	E601	M-2 C	LV701	L-2 C	Q307	E-7 C	Q707	L-3 S	RV20	G-2 S	TP402	B-2 C
DL4	D-5 C	E701	L-2 C	LV702	K-3 C	Q308	F-7 S	Q708	L-3 S	RV21	F-2 S	TP403	D-3 C
		E901	K-8 C	LV703	L-3 C	Q309	F-7 S	Q709	L-3 S	RV22	F-3 S	TP404	D-7 C
				LV704	K-2 C	Q310	E-7 S	Q710	K-3 S	RV23	A-4 S	TP405	C-7 C
D1	E-4 C					Q311	E-8 S	Q731	K-4 C	RV24	A-5 C	TP501	A-3 C
D2	E-4 C	FL1	D-4 C	Q1	G-4 S	Q321	A-6 S	Q732	K-3 C	RV25	H-7 C	TP502	C-7 C
D3	E-5 S	FL2	H-4 C	Q3	E-5 S	Q322	A-6 S	Q733	K-3 S	RV26	C-4 S	TP503	A-2 C
D8	F-7 S	FL3	H-4 C	Q4	E-5 S	Q323	A-6 S	Q734	K-4 S	RV27	G-7 S	TP601	J-2 C
D9	F-7 S	FL4	D-3 C	Q5	E-4 S	Q324	A-6 S	Q735	L-4 S	RV30	H-5 S	TP602	J-2 C
D10	F-6 C	FL5	E-7 C	Q6	E-4 S	Q325	B-6 S	Q736	L-5 S	RV301	A-5 S	TP603	M-2 C
D11	E-5 S	FL6	A-4 C	Q7	E-4 S	Q326	B-6 S	Q737	K-5 S	RV302	B-5 S	TP604	M-2 C
D12	E-5 S	FL7	F-2 C	Q8	E-5 S	Q327	B-6 S	Q739	L-4 S	RV303	B-6 S	TP605	K-3 C
D13	G-9 C	FL8	C-4 C	Q9	E-5 C	Q328	B-6 S	Q740	L-4 S	RV304	C-6 S	TP671	M-5 C
D14	D-1 C			Q10	E-5 S	Q329	C-7 S	Q771	L-6 S	RV401	A-1 S	TP672	M-4 C
D301	F-8 S	IC1	F-5 C	Q11	D-4 S	Q330	C-6 S	Q772	M-6 S	RV402	D-7 S	TP701	K-2 C
D303	F-7 S	IC2	E-5 C	Q12	D-4 S	Q331	C-7 S	Q801	K-7 S	RV403	C-7 S	TP702	K-2 C
D305	F-7 S	IC3	D-4 C	Q13	C-4 S	Q332	C-7 C	Q802	K-8 S	RV404	E-7 S	TP703	L-2 C
D306	E-8 S	IC4	D-3 C	Q23	D-2 S	Q333	C-6 C	Q803	J-8 C	RV405	D-7 C	TP704	L-2 C
D307	E-8 S	IC5	H-8 C	Q24	D-3 S	Q341	A-5 S	Q811	L-1 C	RV501	B-3 C	TP705	K-3 C
D311	B-6 C	IC6	H-9 C	Q26	D-2 S	Q342	B-5 S	Q812	L-2 C	RV601	K-1 C	TP771	L-5 C
D312	B-5 C	IC7	H-2 C	Q27	F-6 S	Q343	B-6 S	Q813	L-1 S	RV602	J-2 S	TP772	L-4 C
D313	C-5 C	IC8	H-4 C	Q28	D-5 S	Q344	B-5 S	Q814	L-1 S	RV604	K-3 S	TP871	J-6 C
D314	C-5 C	IC9	H-5 C	Q29	E-6 S	Q345	B-5 S	Q832	H-1 S	RV605	M-3 S	TP872	K-7 C
D315	C-6 C	IC10	G-6 C	Q30	E-6 S	Q346	C-6 S	Q833	H-1 S	RV606	M-3 S	TP873	J-6 C
D316	C-6 C	IC11	D-6 C	Q31	E-5 C	Q401	A-7 S	Q834	J-1 S	RV607	M-3 S	TP901	L-7 C
D401	B-7 S	IC12	D-5 C	Q32	E-5 S	Q402	A-7 S	Q835	K-1 S	RV631	K-5 S	TP902	K-9 C
D402	D-3 S	IC13	H-6 C	Q33	G-9 S	Q403	A-7 S	Q836	J-1 S	RV651	A-8 S	TP903	L-9 C
D403	D-3 S	IC14	H-6 C	Q34	H-5 S	Q404	B-1 S	Q837	K-1 S	RV701	K-2 S	TP904	K-9 C
D405	C-8 C	IC15	F-2 C	Q35	G-7 S	Q406	D-7 S	Q838	H-1 S	RV702	K-3 S	TP905	H-8 C
D406	C-8 C	IC16	F-2 C	Q36	E-6 S	Q407	D-8 S	Q839	K-1 S	RV704	K-3 S	TP906	F-8 C
D407	C-7 C	IC17	B-4 C	Q37	E-7 S	Q408	D-7 S	Q840	K-1 S	RV705	L-3 S	TP907	M-7 C
D408	C-7 C	IC18	B-5 C	Q38	D-7 S	Q409	D-8 S	Q841	M-7 S	RV706	L-3 S	TP908	E-1 C
D501	A-3 S	IC19	A-5 C	Q39	D-7 S	Q410	D-8 S	Q842	M-7 S	RV707	L-3 S	TP909	J-7 C
D503	B-3 S	IC20	H-7 C	Q41	E-6 S	Q501	B-3 S	Q843	H-1 S	RV708	L-2 S		
D504	B-2 S	IC21	C-6 C	Q42	D-5 S	Q502	B-3 S	Q844	H-1 S	RV731	K-5 S	** C; COMPONENT SIDE	
D631	K-5 S	IC22	B-4 C	Q43	H-6 S	Q503	A-3 S	Q872	L-7 S	RV801	K-7 S	** S; SOLDERING SIDE	
D632	K-5 S	IC23	G-7 C	Q44	G-6 S	Q504	A-3 S	Q873	K-7 S	RV831	M-7 S		
D731	K-5 S	IC24	G-7 C	Q45	H-6 S	Q505	C-2 S	Q874	K-7 S	RV832	M-7 S		
D732	L-5 S	IC301	A-5 C	Q46	H-6 S	Q506	B-2 S	Q875	J-7 S	RV871	M-7 S		
D801	K-8 S	IC302	C-5 C										

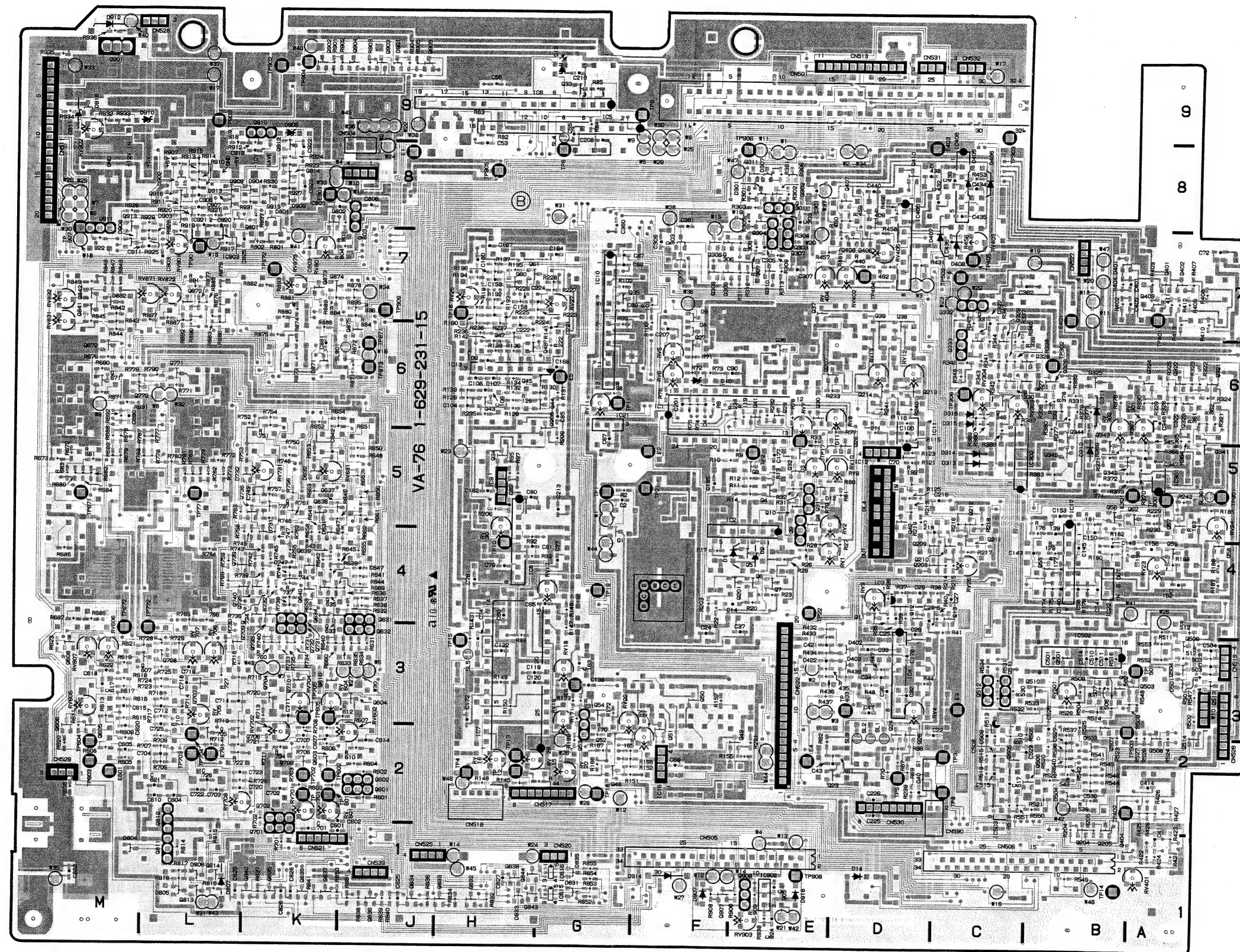


RV872	L-7 C
RV873	K-7 C
RV901	L-7 C
RV902	M-8 C
RV903	E-1 C

S1 D-2 C

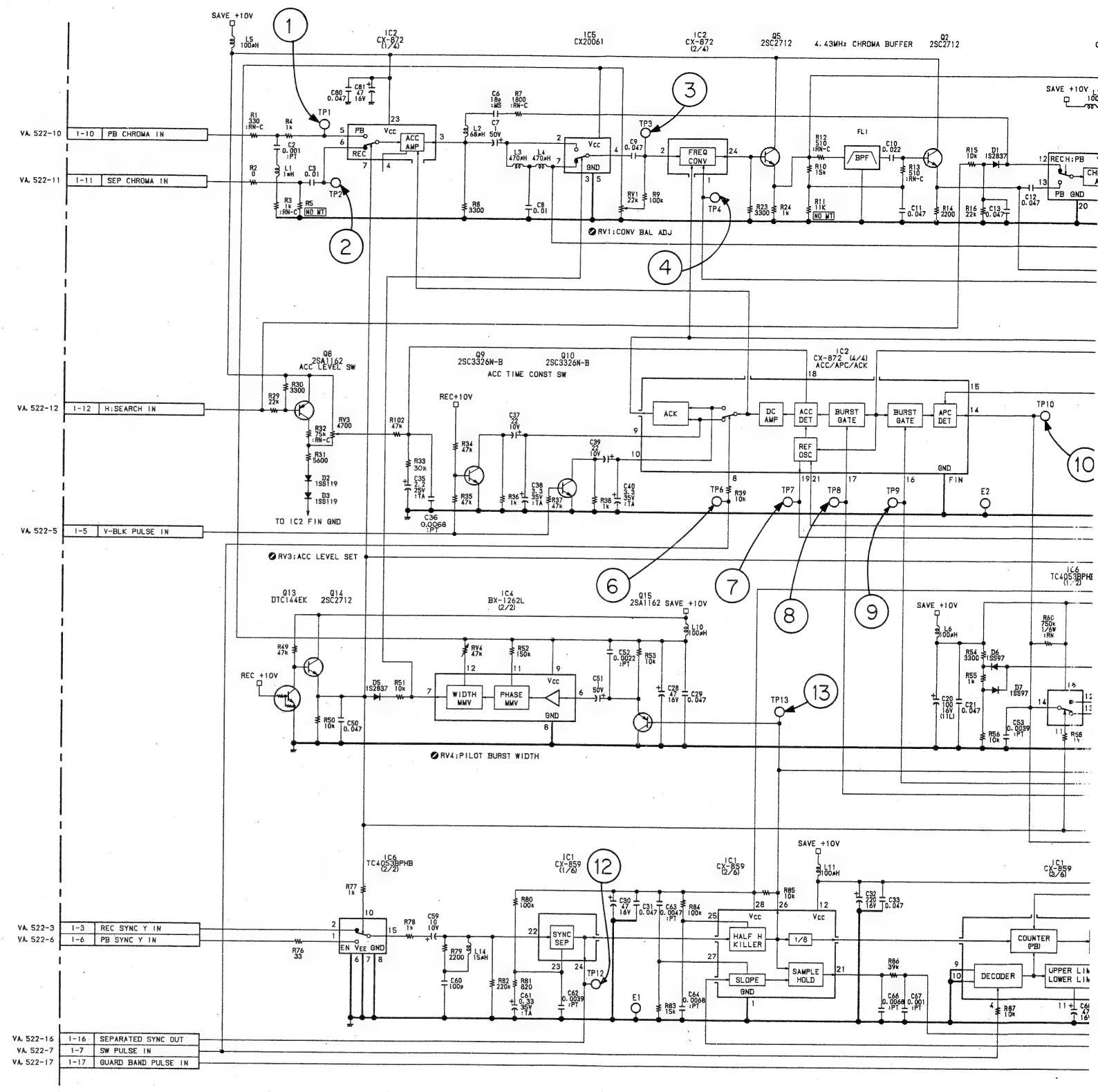
TP1	G-5 C
TP2	E-5 C
TP3	D-2 C
TP4	H-2 C
TP5	D-2 C
TP6	G-8 C
TP8	C-2 C
TP9	G-9 C
TP10	H-4 C
TP11	G-6 C
TP12	H-2 C
TP13	H-2 C
TP14	B-1 C
TP15	H-3 C
TP16	H-7 C
TP17	E-5 C
TP18	G-2 C
TP19	G-4 C
TP21	F-5 C
TP22	E-4 C
TP300	A-5 C
TP301	A-5 C
TP302	B-6 C
TP303	C-8 C
TP306	C-6 C
TP401	A-7 C
TP402	B-2 C
TP403	D-3 C
TP404	D-7 C
TP405	A-7 C
TP501	C-3 C
TP502	C-7 C
TP503	A-2 C
TP601	J-2 C
TP602	J-2 C
TP603	M-2 C
TP604	M-2 C
TP605	K-3 C
TP671	M-5 C
TP672	M-4 C
TP701	K-2 C
TP702	K-2 C
TP703	L-2 C
TP704	L-2 C
TP705	K-3 C
TP711	L-5 C
TP772	L-4 C
TP871	J-6 C
TP872	K-7 C
TP873	J-6 C
TP901	L-7 C
TP902	L-9 C
TP903	K-9 C
TP904	K-9 C
TP905	H-8 C
TP906	F-8 C
TP907	M-7 C
TP908	E-1 C
TP909	J-7 C

\*-\* C; COMPONENT SIDE  
\*-\* S; SOLDERING SIDE



**VA-76** — SOLDERING SIDE —  
1-629-231-11, 12, 13, 14, 15  
VO-8800P

**CR - 35 : CHROMA PROCESSOR**







CR - 35 : CHROMA PROCESSOR

CR-35 (1-629-232-11, 12, 13)

CN1 C-4 C

D1 B-3 S  
D2 D-3 C  
D3 D-3 C  
D4 A-1 C  
D5 D-4 S  
D6 A-3 C  
D7 A-3 C  
D8 A-3 S  
D9 A-3 C  
D10 D-1 S

E1 A-1 C  
E2 D-4 C  
E3 C-2 C

FL1 C-3 C  
FL2 D-4 C  
FL3 E-1 C

IC1 D-2 C  
IC2 C-3 C  
IC3 C-1 C  
IC4 E-4 C  
IC5 D-4 C  
IC6 A-3 C

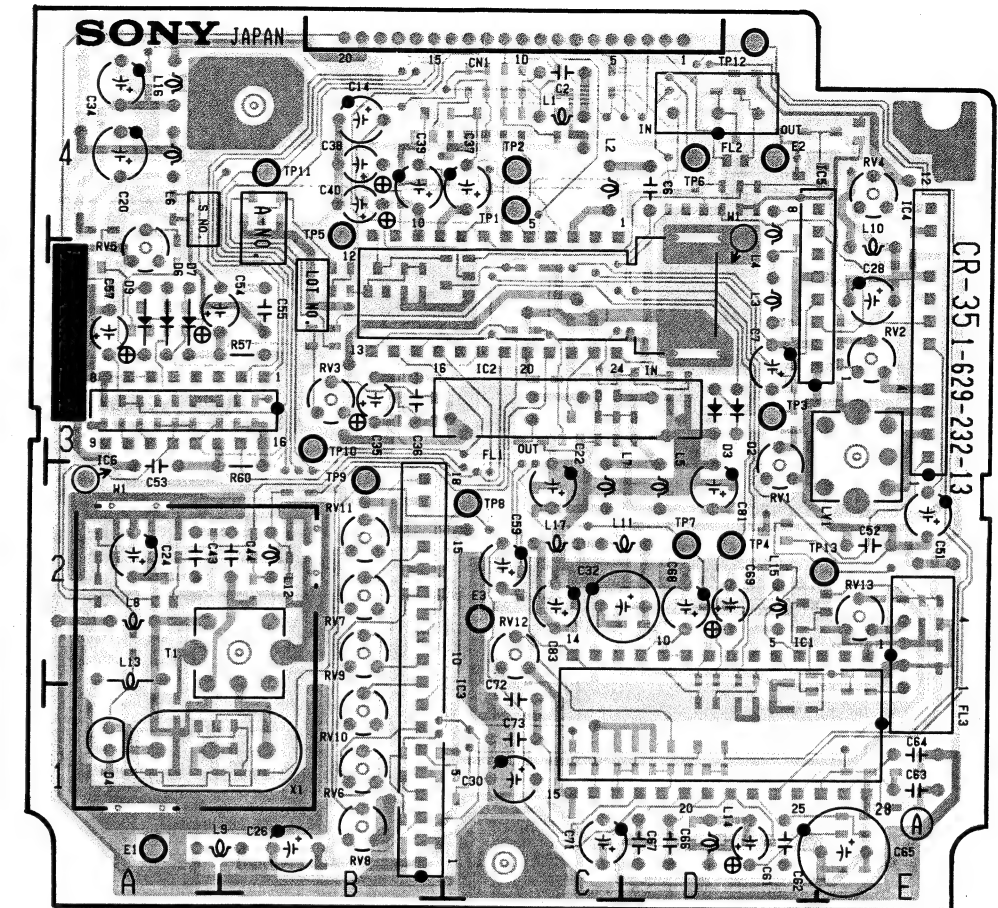
LV1 E-2 C

Q1 C-4 S  
Q2 C-3 S  
Q3 C-3 S  
Q4 D-4 S  
Q5 D-3 S  
Q8 B-4 S  
Q9 C-4 S  
Q10 B-4 S  
Q11 A-1 S  
Q12 A-2 S  
Q13 D-4 S  
Q14 E-4 S  
Q15 D-2 S  
Q16 A-3 S  
Q17 D-2 S  
Q18 E-1 S

RV1 D-2 C  
RV2 E-3 C  
RV3 B-3 C  
RV4 E-4 C  
RV5 A-3 C  
RV6 B-1 C  
RV7 B-2 C  
RV8 B-1 C  
RV9 B-2 C  
RV10 B-1 C  
RV11 B-2 C  
RV12 C-2 C  
RV13 E-2 C

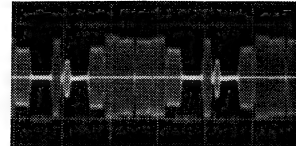
TP1 C-4 C  
TP2 C-4 C  
TP3 D-3 C  
TP4 D-2 C  
TP5 B-4 C  
TP6 D-4 C  
TP7 D-2 C  
TP8 C-2 C  
TP9 B-2 C  
TP10 B-3 C  
TP11 B-4 C  
TP12 D-4 C  
TP13 E-2 C

\*\* C: COMPONENT SIDE  
\*\* S: SOLDERING SIDE

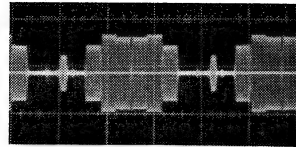


CR-35 - COMPONENT SIDE -  
1-629-232-11, 12, 13  
VO-8800P

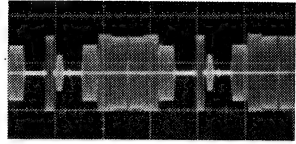
① TP1  
PB  
H; 20μsec/DIV  
V; 0.1V/DIV



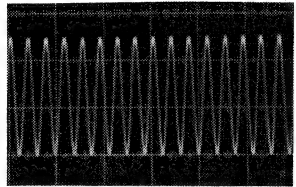
② TP2  
EE  
H; 20μsec/DIV  
V; 0.1V/DIV



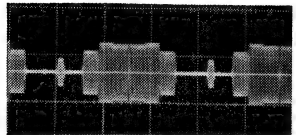
③ TP3  
EE  
H; 20μsec/DIV  
V; 0.5V/DIV



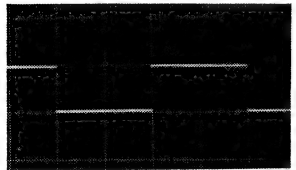
④ TP4  
EE  
H; 0.5μsec/DIV  
V; 0.2V/DIV  
5.35MHz



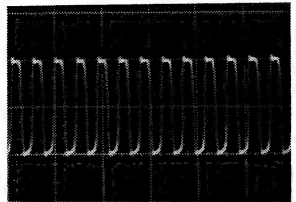
⑤ TP5  
EE  
H; 20μsec/DIV  
V; 0.5V/DIV



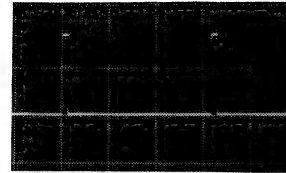
⑥ TP6  
PB  
H; 10msec/DIV  
V; 5V/DIV



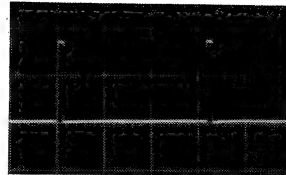
⑦ TP7  
EE  
H; 0.5μsec/DIV  
V; 0.2V/DIV  
4.43MHz



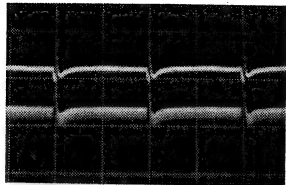
⑧ TP8  
EE  
H; 20μsec/DIV  
V; 2V/DIV



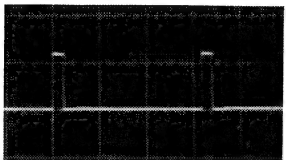
⑨ TP9  
EE  
H; 20μsec/DIV  
V; 2V/DIV



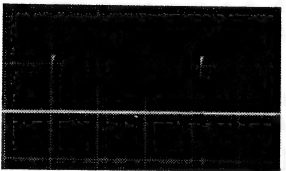
⑩ TP10  
EE  
H; 10msec/DIV  
V; 0.05/DIV



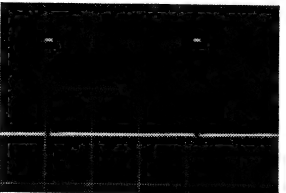
⑪ TP11  
EE  
H; 20μsec/DIV  
V; 5V/DIV



⑫ TP12  
EE  
H; 20μsec/DIV  
V; 5V/DIV



⑬ TP13  
EE  
H; 20μsec/DIV  
V; 5V/DIV



CR - 35 : CHROMA PROCESSOR

CR-35 (1-629-232-11, 12, 13)

CN1 C-4 C

D1 B-3 S  
D2 D-3 C  
D3 D-3 C  
D4 A-1 C  
D5 D-4 S  
D6 A-3 C  
D7 A-3 C  
D8 A-3 S  
D9 A-3 C  
D10 D-1 S

E1 A-1 C  
E2 D-4 C  
E3 C-2 C

FL1 C-3 C  
FL2 D-4 C  
FL3 E-1 C

IC1 D-2 C  
IC2 C-3 C  
IC3 C-1 C  
IC4 B-4 C  
IC5 D-4 C  
IC6 A-3 C

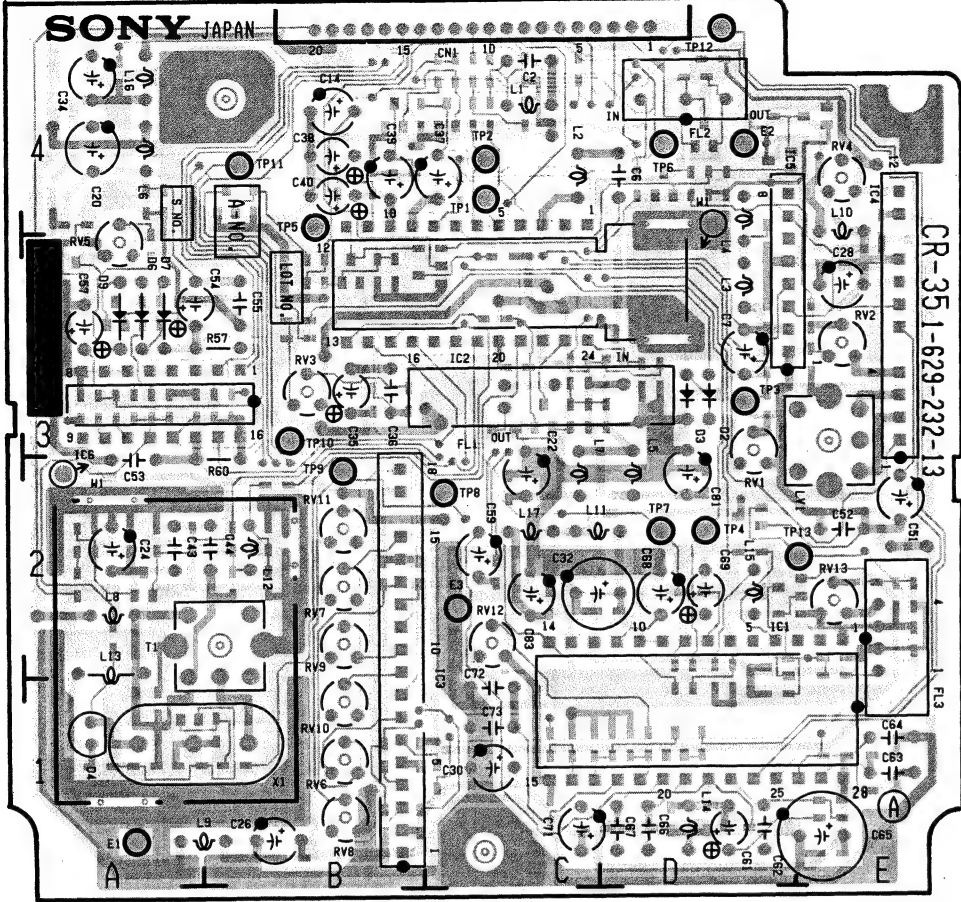
LV1 E-2 C

Q1 C-4 S  
Q2 C-3 S  
Q3 C-3 S  
Q4 D-4 S  
Q5 D-3 S  
Q8 B-4 S  
Q9 C-4 S  
Q10 B-4 S  
Q11 A-1 S  
Q12 A-2 S  
Q13 D-4 S  
Q14 E-4 S  
Q15 D-2 S  
Q16 A-3 S  
Q17 D-2 S  
Q18 E-1 S

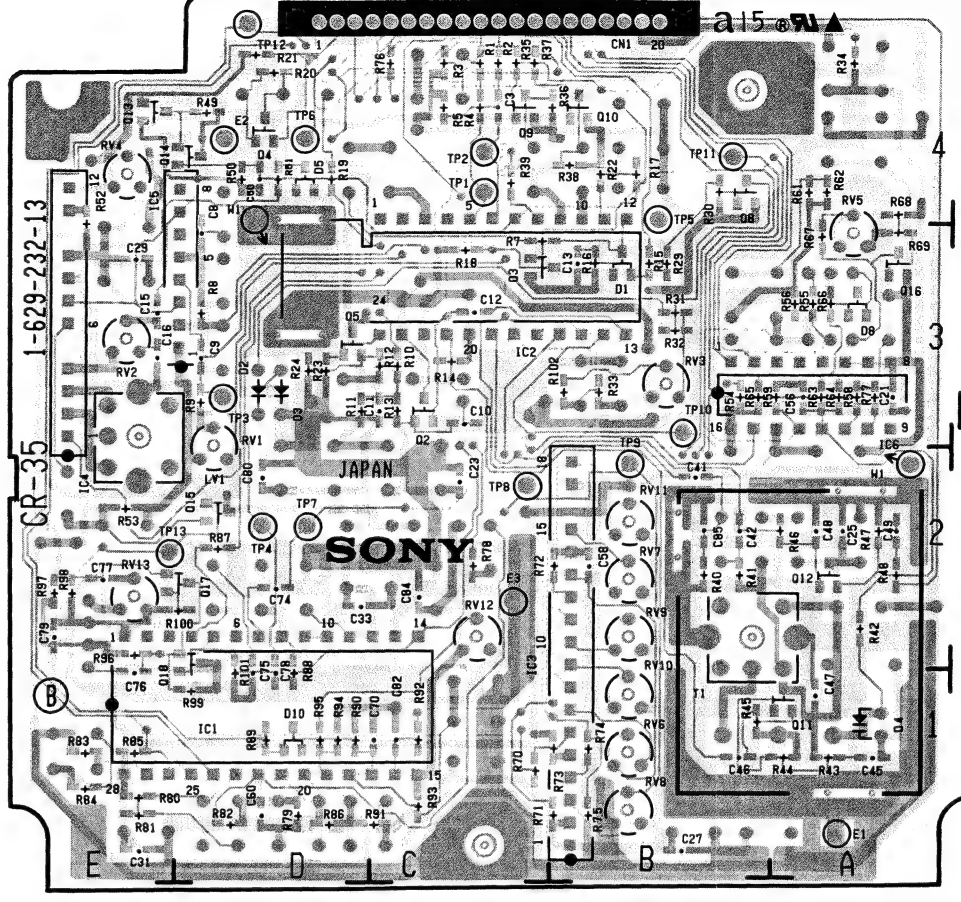
RV1 D-2 C  
RV2 E-3 C  
RV3 B-3 C  
RV4 E-4 C  
RV5 A-3 C  
RV6 B-1 C  
RV7 B-2 C  
RV8 B-1 C  
RV9 B-2 C  
RV10 B-1 C  
RV11 B-2 C  
RV12 C-2 C  
RV13 E-2 C

TP1 C-4 C  
TP2 C-4 C  
TP3 D-3 C  
TP4 D-2 C  
TP5 B-4 C  
TP6 D-4 C  
TP7 D-2 C  
TP8 C-2 C  
TP9 B-2 C  
TP10 B-3 C  
TP11 B-4 C  
TP12 D-4 C  
TP13 E-2 C

\*\*\* C: COMPONENT SIDE  
\*\*\* S: SOLDERING SIDE



CR-35 - COMPONENT SIDE -  
1-629-232-11, 12, 13  
VO-8800P



CR-35 - SOLDERING SIDE -  
1-629-232-11, 12, 13  
VO-8800P

RP - 38A      RP - 38A



SECTION 15  
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

The VO-8800P circuit information is provided below.

SYSTEM	BOARD	CIRCUIT FUNCTION
VIDEO	VA-76	Y/C Mix, Y Modulator/Demodulator, C RF PB, Video Output
	DUS-262	Connection
	CR-35	Chroma Processor
	RP-38A	REC/PB Amplifier
	CP-135	Y/C Separator
	CM-23	Camera IN/OUT
AUDIO	DU-58	Audio R/P Head, Erase Head
	CP-135	XLR IN/OUT Amplifier, Select Switch
	CM-23	Camera MIC Input Select
	HP-45	Phone Level
	SW-296	Audio Level, Power Switch
	VA-76	REC/PB Amplifier, Dolby, Pilot Tone
	SY-131A	Erase/Bias Oscillator
SERVO	SV-108A	Drum/Capstan/Reel Servo
	PC-22	Take-up/Supply Reel FG
	DU-58	CTL R/P Head
	VR-85	Tracking VR
SYSTEM CONTROL	SY-131A	System Control
	SE-99	Tape Top Detector
	SE-118	Tape End Detector
	KY-147	Function Key/LCD Display
	PD-44	Solenoid Driver
	HN-102	Connection
	LED-69	Tape Top LED
	LED-70	Tape End LED
	DUS-4	Tension Regulator Switch

SYSTEM	BOARD	CIRCUIT FUNCTION
POWER	VA-76	DC-DC Converter, Regulator
	TR-54	SAVE +10 V
OTHER	PA-85	CONFI RF PB Amplifier
	SY-131A	Time Code REC/PB Amplifier
	CM-23	Camera Control
	CN-271	Connection
	*1 BP-15	Connection
	*2 BP-16	Battery Case

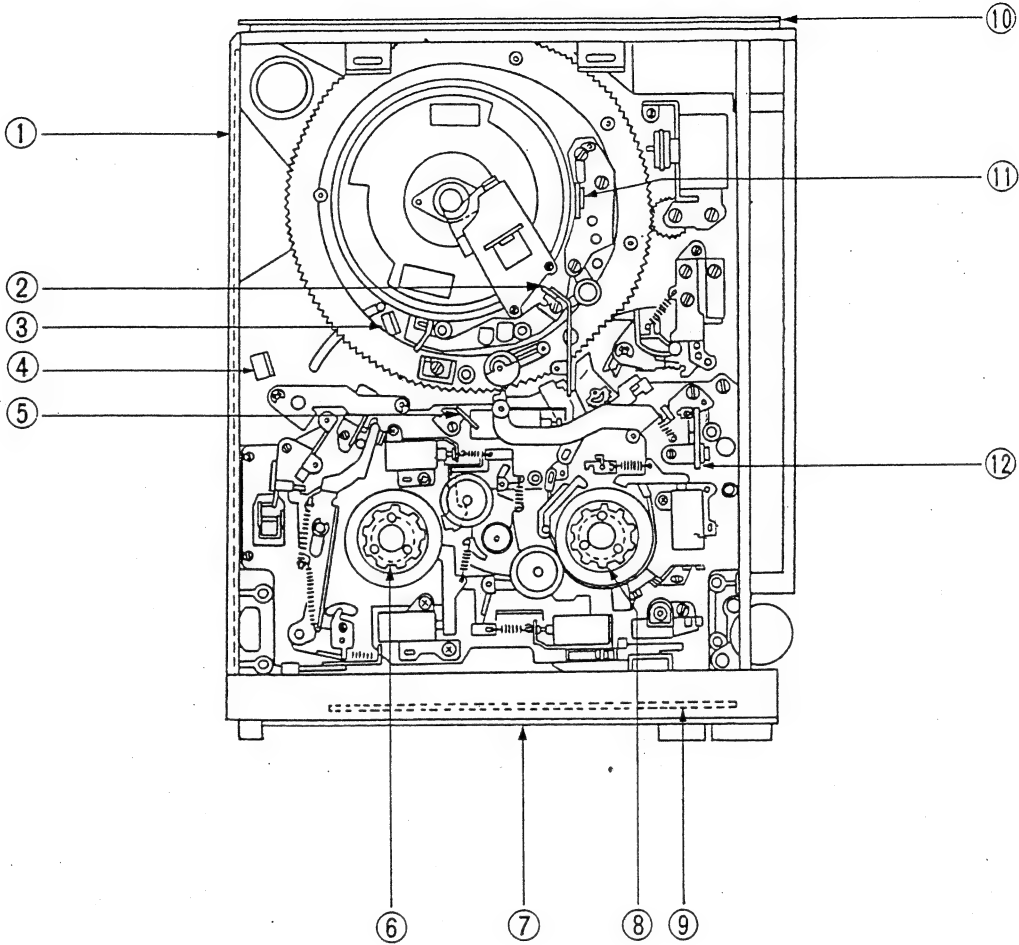
Note :  
\*1 marked board is for Serial No. up to 10300.  
\*2 marked board is for Serial No. 10301 and higher.

LOCATION

LOCATION OF THE PRINTED CIRCUIT BOARD

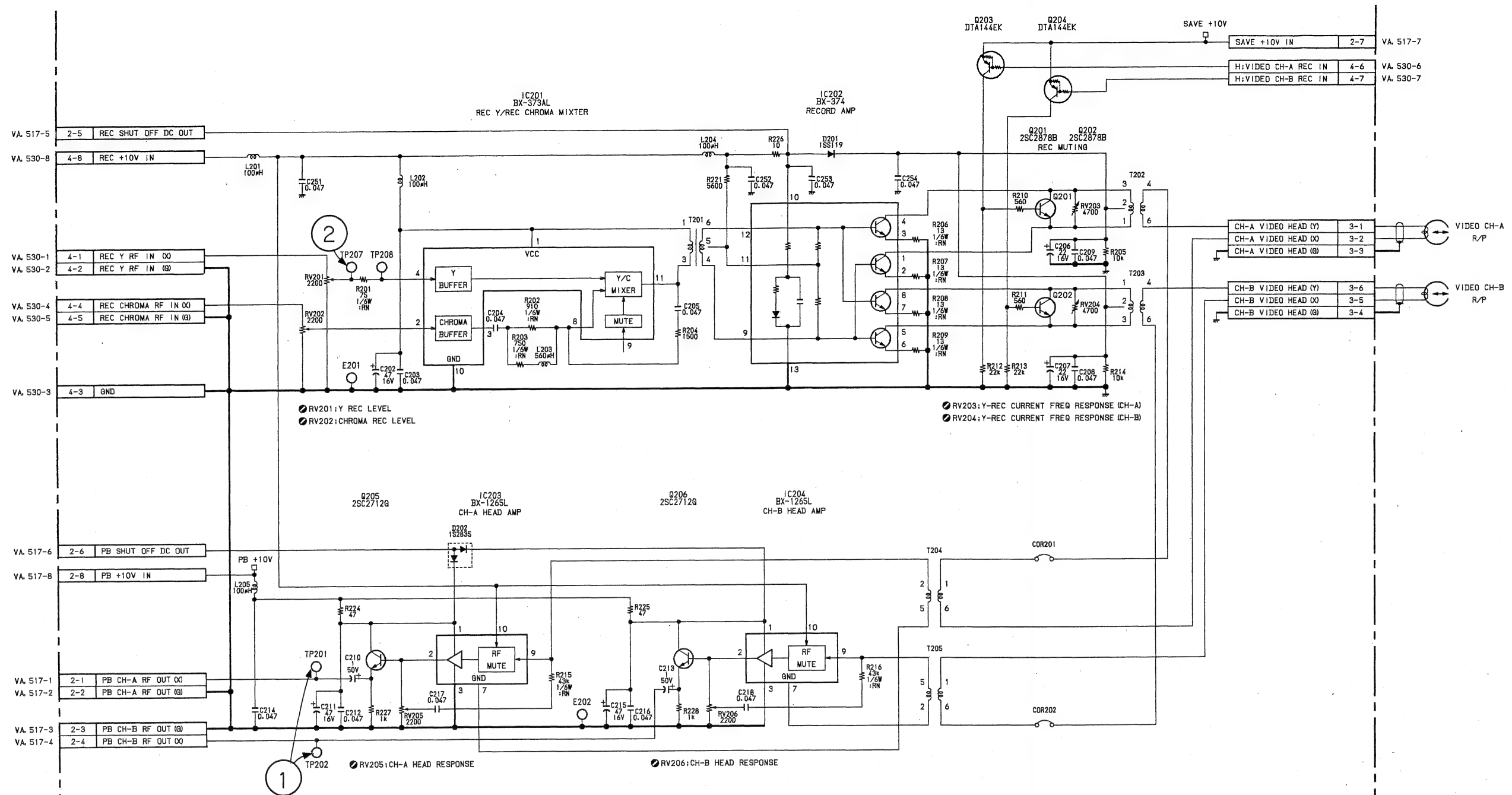
< TOP VIEW >

< BOTTO



- |                |               |
|----------------|---------------|
| ① SY Board     | ⑩ SV Board    |
| ② SE-118 Board | ⑪ DU-58 Board |
| ③ SE-99 Board  | ⑫ DUS-4 Board |
| ④ LED-69 Board |               |
| ⑤ LED-70 Board |               |
| ⑥ PC-22 Board  |               |
| ⑦ KY-147 Board |               |
| ⑧ PC-22 Board  |               |
| ⑨ PD-44 Board  |               |

RP - 38A : VIDEO REC/PB AMPLIFIER



NOTE

	NTSC	PAL
L203	560#	180#
R202	910 :RN	620 :RN
R203	750 :RN	220 :RN
T202	1-427-472-21	1-426-172-11
T203	#	#
T205	1-426-319-11	1-426-320-11

RP - 38A  
1-629-245-11  
VO-8800P



RP - 38A : VIDEO REC/PB AMPLIFIER

RP-38A (1-629-245-11)

CN702 A-1 C  
CN703 B-1 C  
CN704 D-2 C

D201 C-1 C  
D202 D-2 S

E201 D-1 C  
E202 A-1 C

IC201 D-1 C  
IC202 C-1 C  
IC203 B-1 C  
IC204 B-2 C

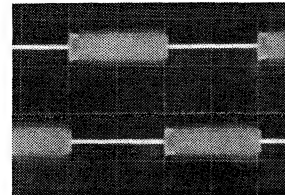
Q201 C-1 C  
Q202 C-2 C  
Q203 B-1 S  
Q204 B-2 S  
Q205 D-1 S  
Q206 D-2 S

RV201 D-2 C  
RV202 D-1 C  
RV203 C-1 C  
RV204 C-2 C  
RV205 A-1 C  
RV206 A-2 C

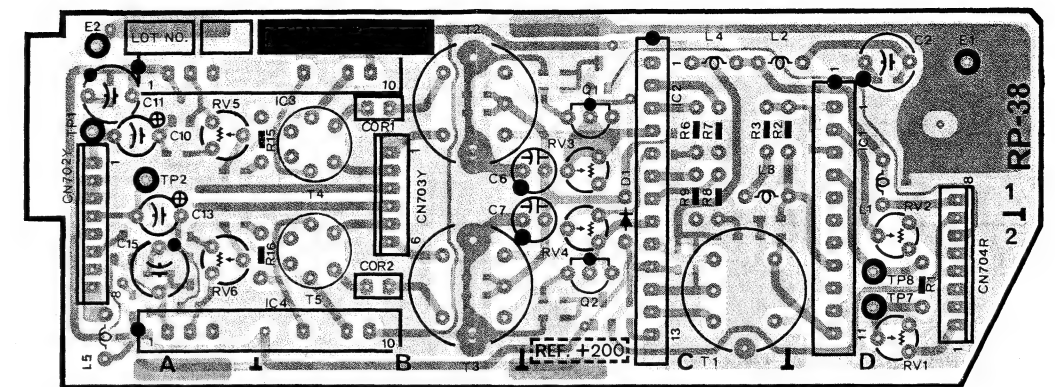
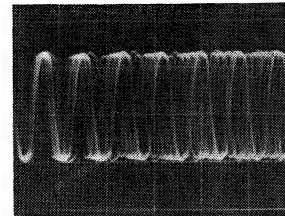
TP201 A-1 C  
TP202 A-1 C  
TP207 D-2 C  
TP208 D-2 C

\*\*-\* C; COMPONENT SIDE  
\*\*-\* S; SOLDERING SIDE

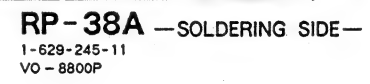
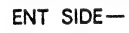
① TP 201  
TP 202  
PB  
TRIG; TP18/VA-76  
H; 10msec/DIV  
V; 0.05V/DIV



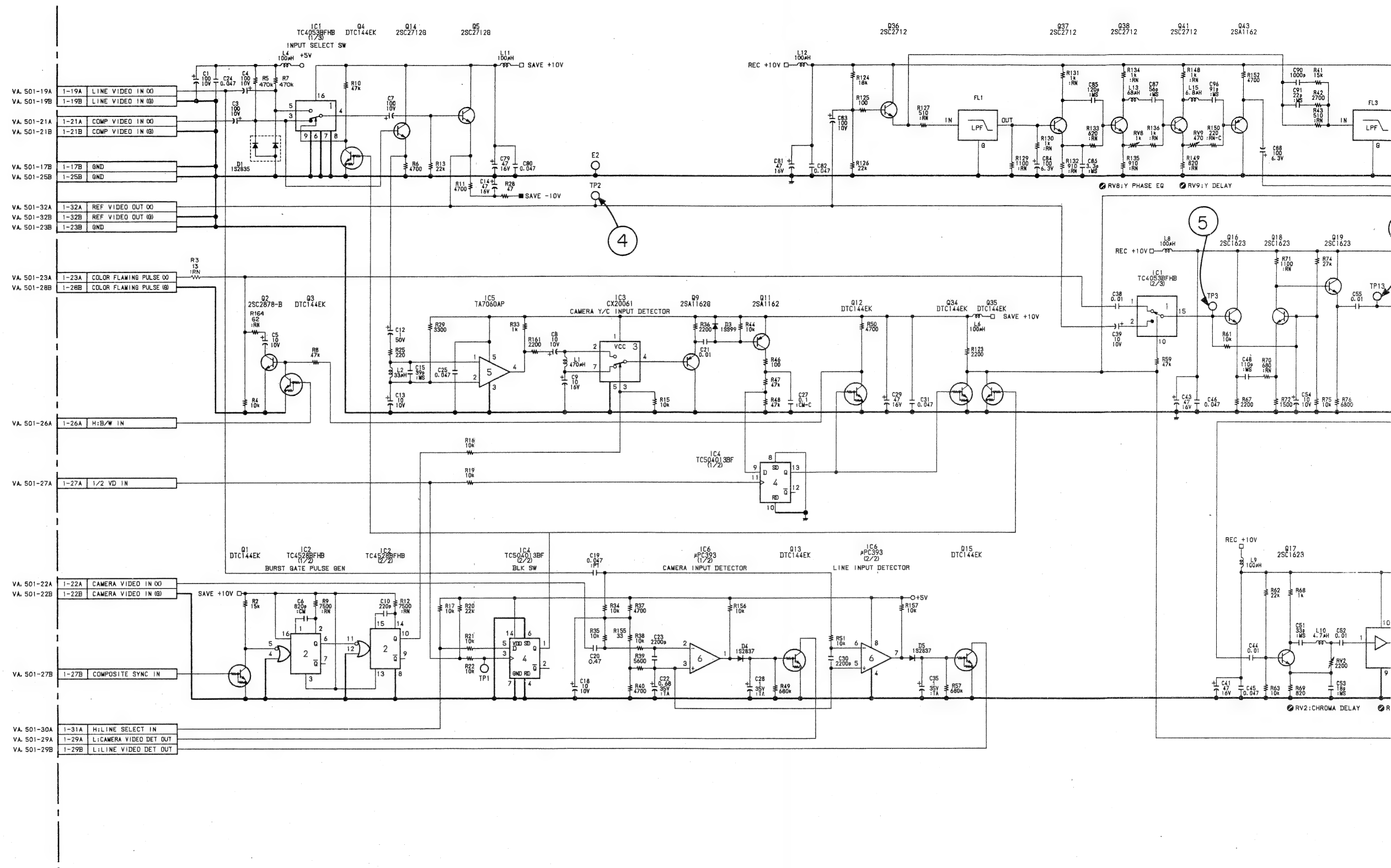
② TP 207  
REC  
H; 0.2μsec/DIV  
V; 0.1V/DIV



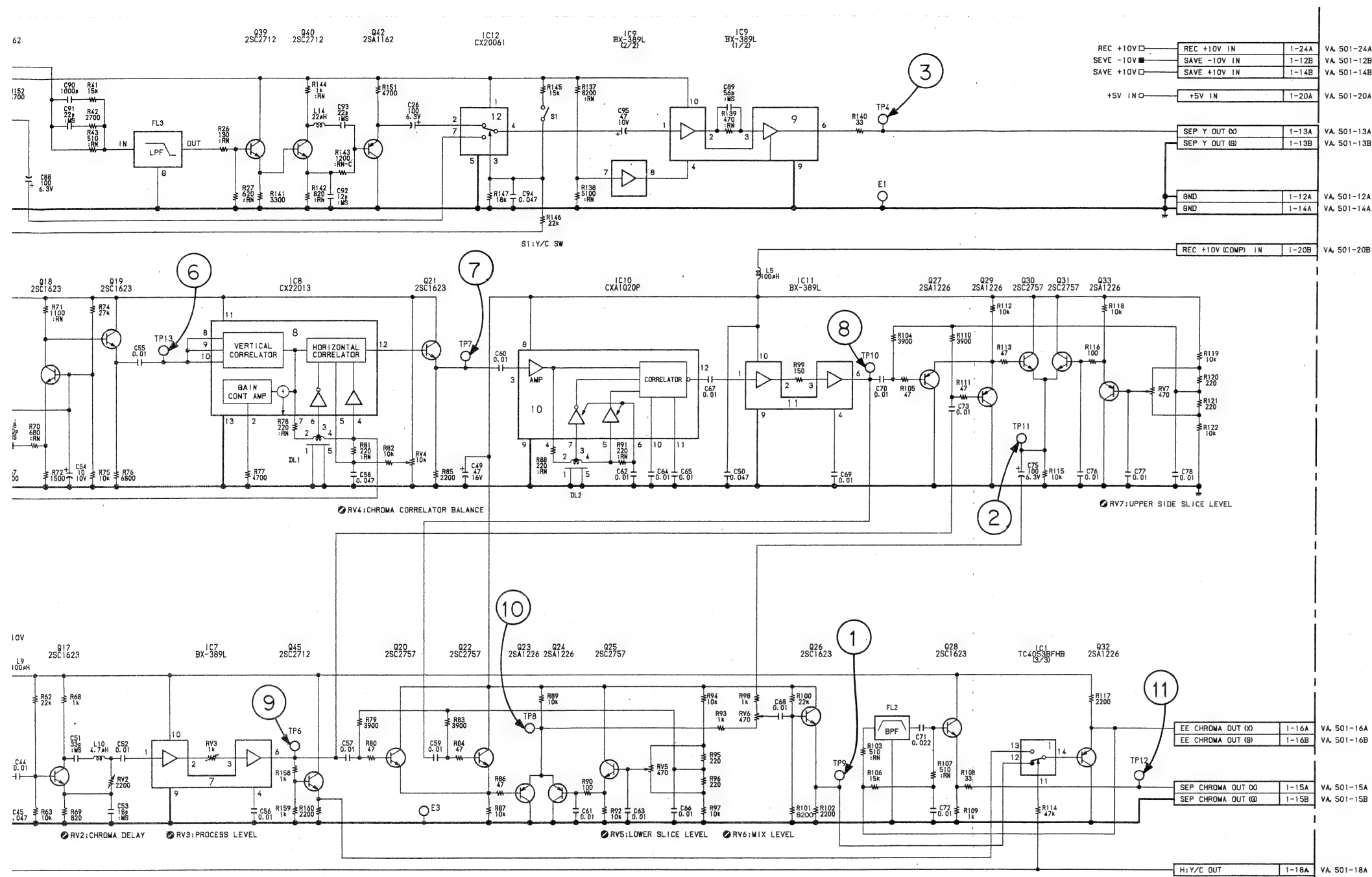
RP-38A —COMPONENT SIDE—  
1-629-245-11  
VO - 8800P



CP - 135 (1/2) : Y/C SEPARATOR

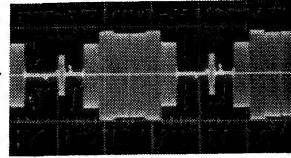




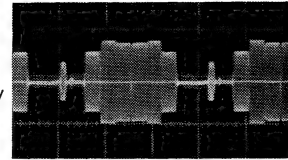


CP-135(1/2)  
1-629-233-11  
VO-8800P

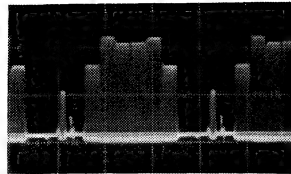
① TP9  
EE  
H: 20  $\mu$ sec/DIV  
V: 0.2V/DIV



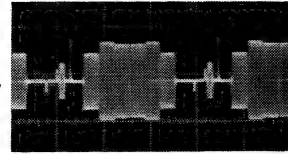
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EE  
H: 20  $\mu$ sec/DIV  
V: 1V/DIV



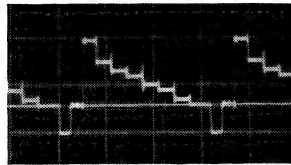
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EE  
H: 20  $\mu$ sec/DIV  
V: 0.2V/DIV



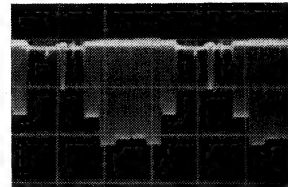
⑨ TP6  
EE  
H: 20  $\mu$ sec/DIV  
V: 0.5V/DIV



③ TP4  
EE  
H: 20  $\mu$ sec/DIV  
V: 0.2V/DIV



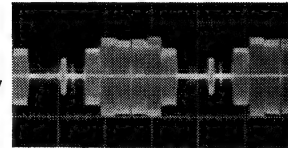
⑩ TP8  
EE  
H: 20  $\mu$ sec/DIV  
V: 0.2V/DIV



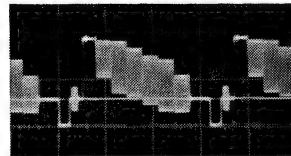
④ TP2  
EE  
H: 20  $\mu$ sec/DIV  
V: 0.5V/DIV



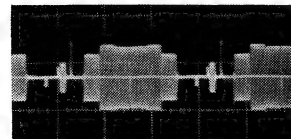
⑪ TP12  
EE  
H: 20  $\mu$ sec/DIV  
V: 0.1V/DIV



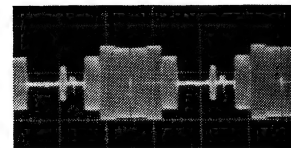
⑤ TP3  
EE  
H: 20  $\mu$ sec/DIV  
V: 0.5V/DIV

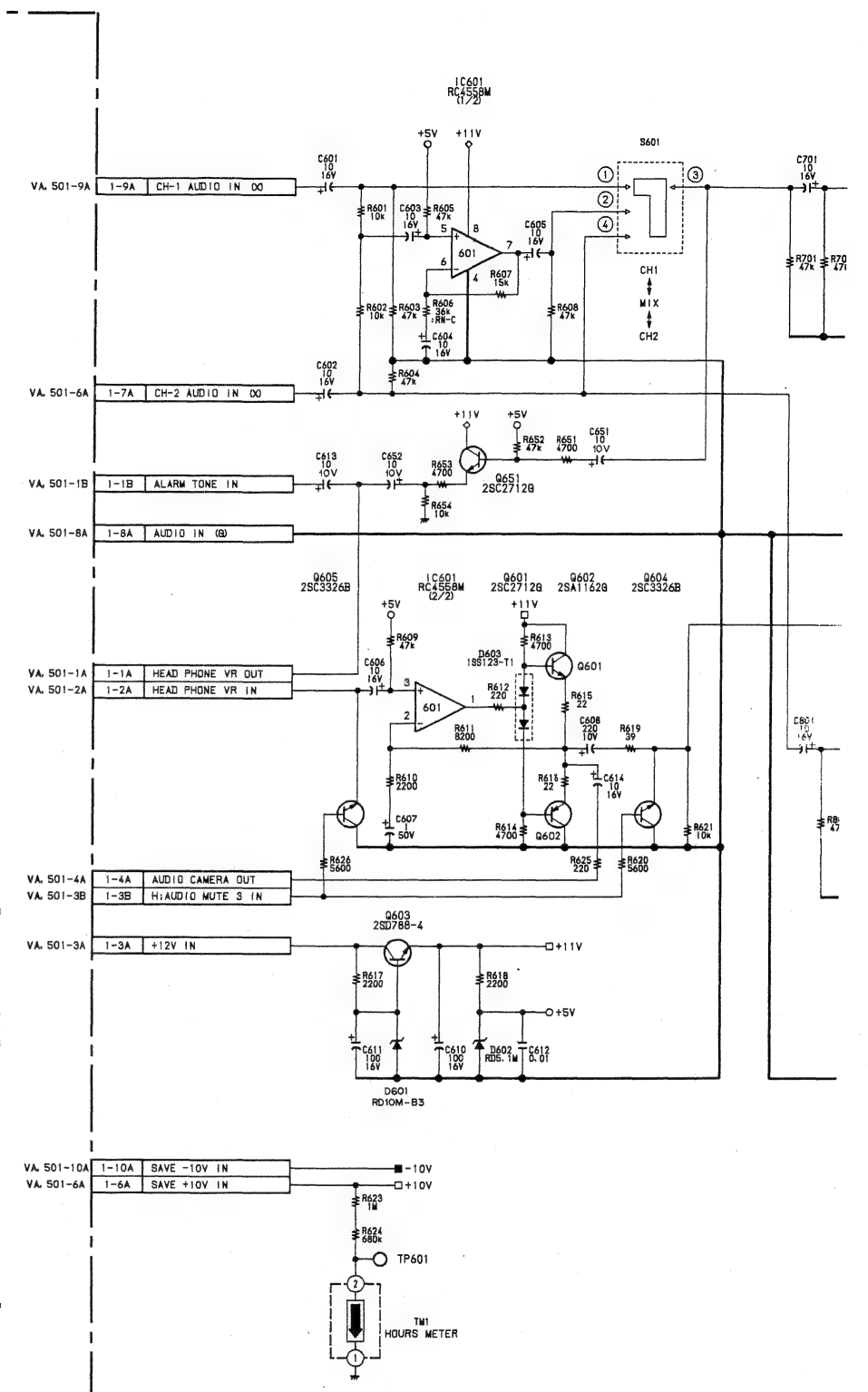
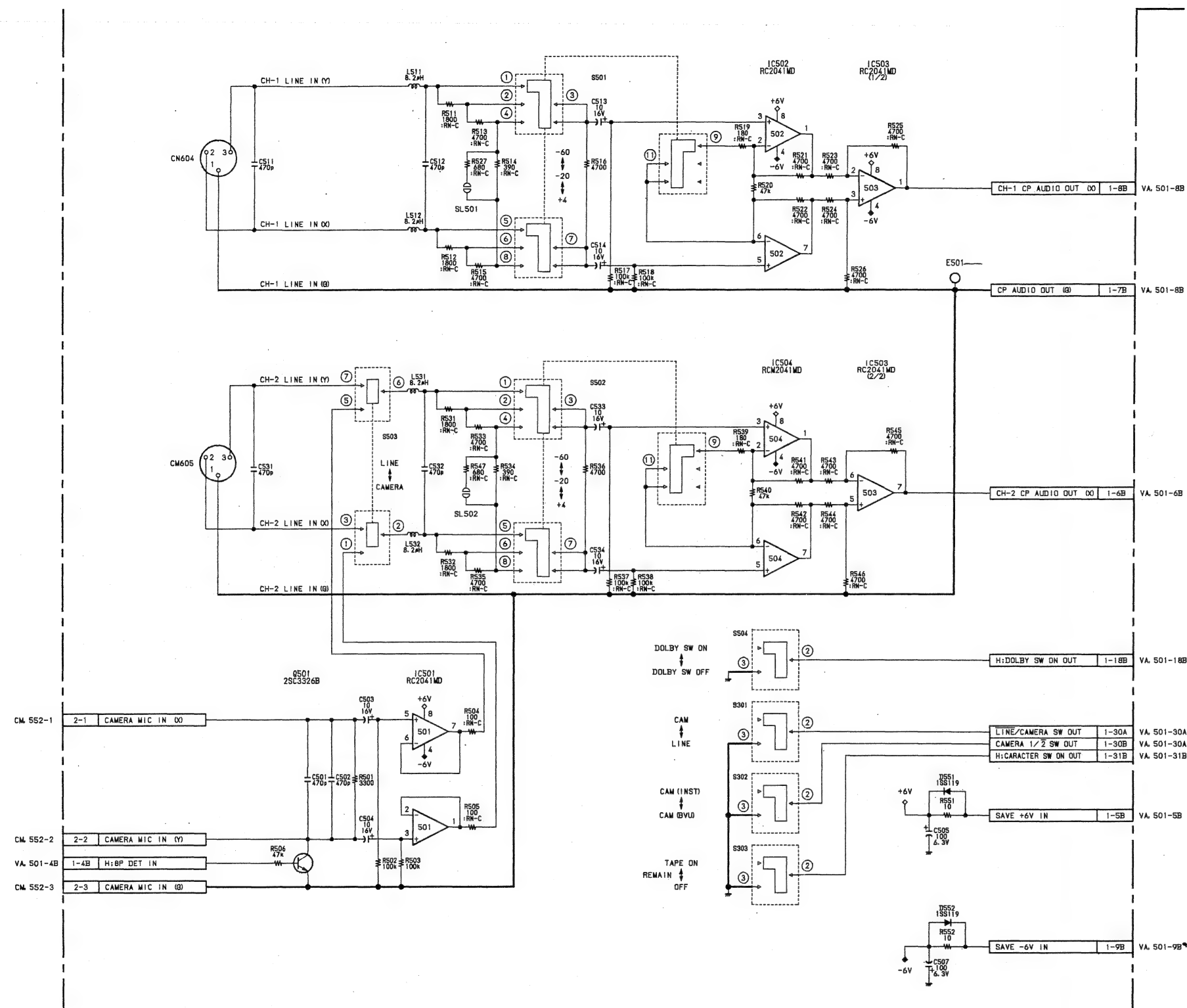


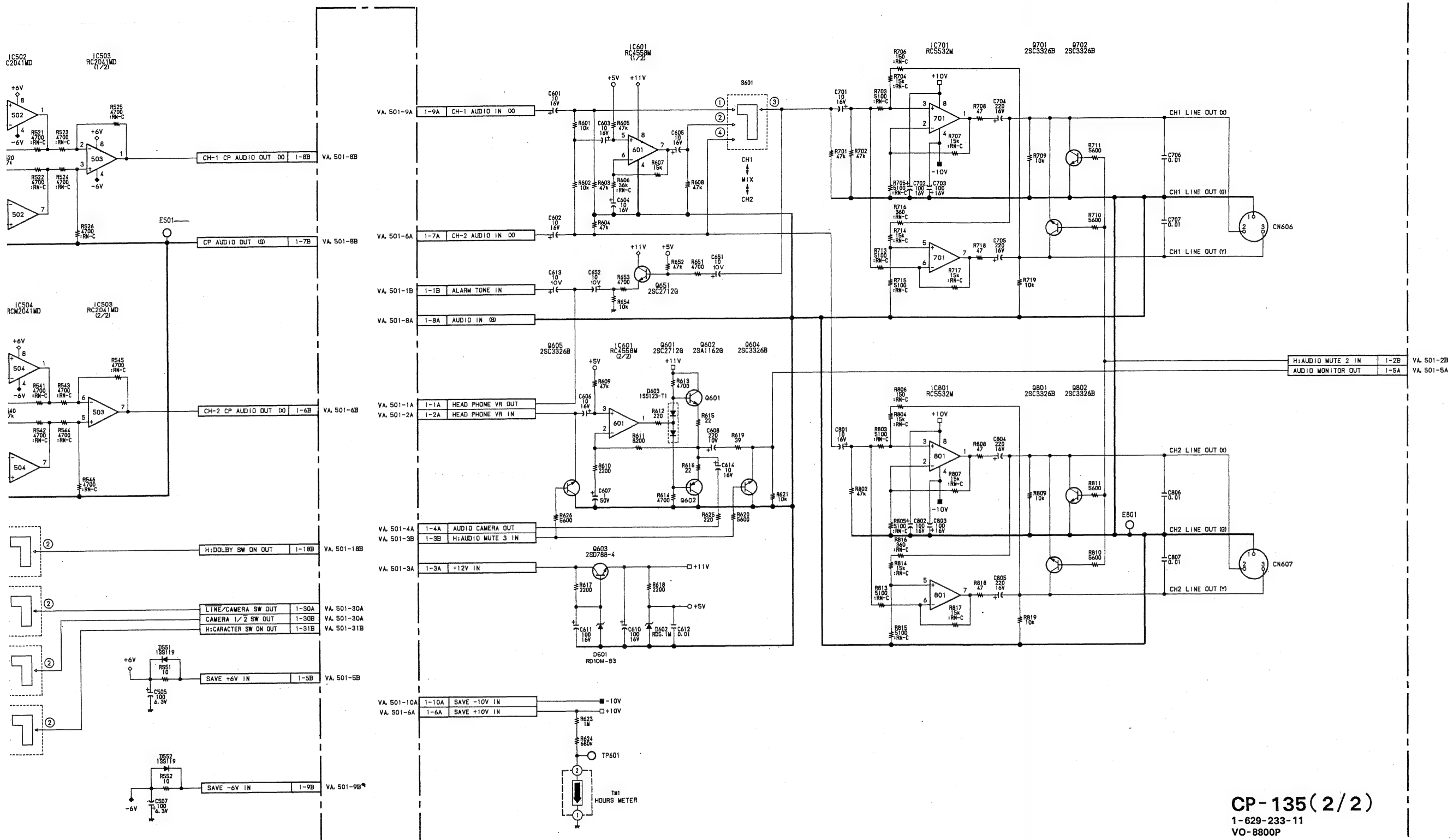
⑥ TP13  
EE  
H: 20  $\mu$ sec/DIV  
V: 0.5V/DIV



⑦ TP7  
EE  
H: 20  $\mu$ sec/DIV  
V: 0.2V/DIV







CP-135(2/2)  
1-629-233-11  
VO-8800P

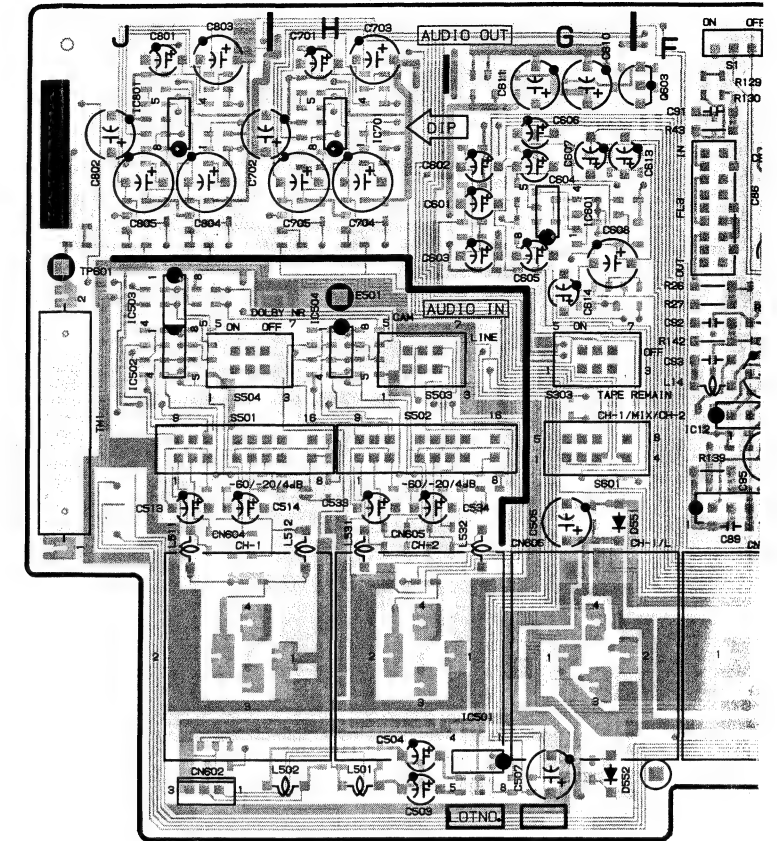
## CP - 135 : Y/C SEPARATOR

## XLR IN/OUT AMPLIFIER, SELECT SWITCH

CP-135 (1-629-233-11)

CN601	C-4	S	Q26	E-2	S
CN602	J-4	C	Q27	D-1	S
CN604	J-4	C	Q28	E-3	S
CN605	H-4	C	Q29	D-1	S
CN606	G-4	C	Q30	D-1	S
CN607	F-4	C	Q31	D-1	S
			Q32	E-3	S
DL1	D-2	C	Q33	E-1	S
DL2	B-1	C	Q34	B-3	S
			Q35	B-3	S
D1	C-3	S	Q36	E-1	S
D3	A-1	C	Q37	F-1	S
D4	B-3	S	Q38	E-2	S
D5	A-3	S	Q39	F-2	S
D6	A-2	S	Q40	F-3	S
D7	E-1	C	Q41	E-2	S
D551	F-4	C	Q42	F-3	S
D552	G-4	C	Q43	E-3	S
D601	G-1	S	Q45	D-2	S
D602	G-1	S	Q501	J-4	S
D603	G-1	S	Q601	F-2	S
			Q602	G-2	S
E1	D-4	C	Q603	F-1	C
E2	D-3	C	Q604	G-2	S
E3	D-2	C	Q605	G-1	S
E501	H-2	C	Q701	H-2	S
E701	E-4	C	Q702	H-2	S
			Q801	J-2	S
			Q802	J-2	S
FL1	E-1	C	RV2	C-1	C
FL2	E-3	C	RV3	D-1	C
FL3	F-2	C	RV4	D-2	C
			RV5	D-2	C
IC1	D-4	C	RV6	E-1	C
IC2	B-4	C	RV7	E-1	C
IC3	B-1	C	RV8	F-2	C
IC4	B-3	C	RV9	F-3	C
IC5	B-2	C			
IC6	B-3	C	S1	F-1	C
IC7	D-1	C	S301	D-3	C
IC8	C-2	C	S302	D-3	C
IC9	F-3	C	S303	G-3	C
IC10	B-1	C	S501	J-3	C
IC11	C-1	C	S502	H-3	C
IC12	F-3	C	S503	H-3	C
IC501	G-4	C	S504	J-3	C
IC502	J-3	C	S601	G-3	C
IC503	J-3	C			
IC504	H-3	C	TP1	B-4	C
IC601	G-2	C	TP2	C-3	C
IC701	H-1	C	TP3	D-3	C
IC801	J-1	C	TP4	E-4	C
Q1	B-1	S	TP6	D-1	C
Q2	B-3	C	TP7	C-1	C
Q3	C-3	S	TP8	D-2	C
Q4	D-3	S	TP9	E-2	C
Q5	C-3	S	TP10	C-1	C
Q9	A-1	S	TP11	D-1	C
Q11	A-1	S	TP12	E-3	C
Q12	B-3	S	TP13	C-2	C
Q13	A-3	S	TP601	J-2	C
Q14	D-3	S			
Q15	A-3	S			
Q16	D-3	S			
Q17	C-1	S			
Q18	D-3	S			
Q19	C-2	S			
Q20	D-2	S			
Q21	C-2	S			
Q22	D-2	S			
Q23	D-2	S			
Q24	D-2	S			
Q25	D-2	S			

\*\* C; COMPONENT SIDE  
 \*\* S; SOLDERING SIDE

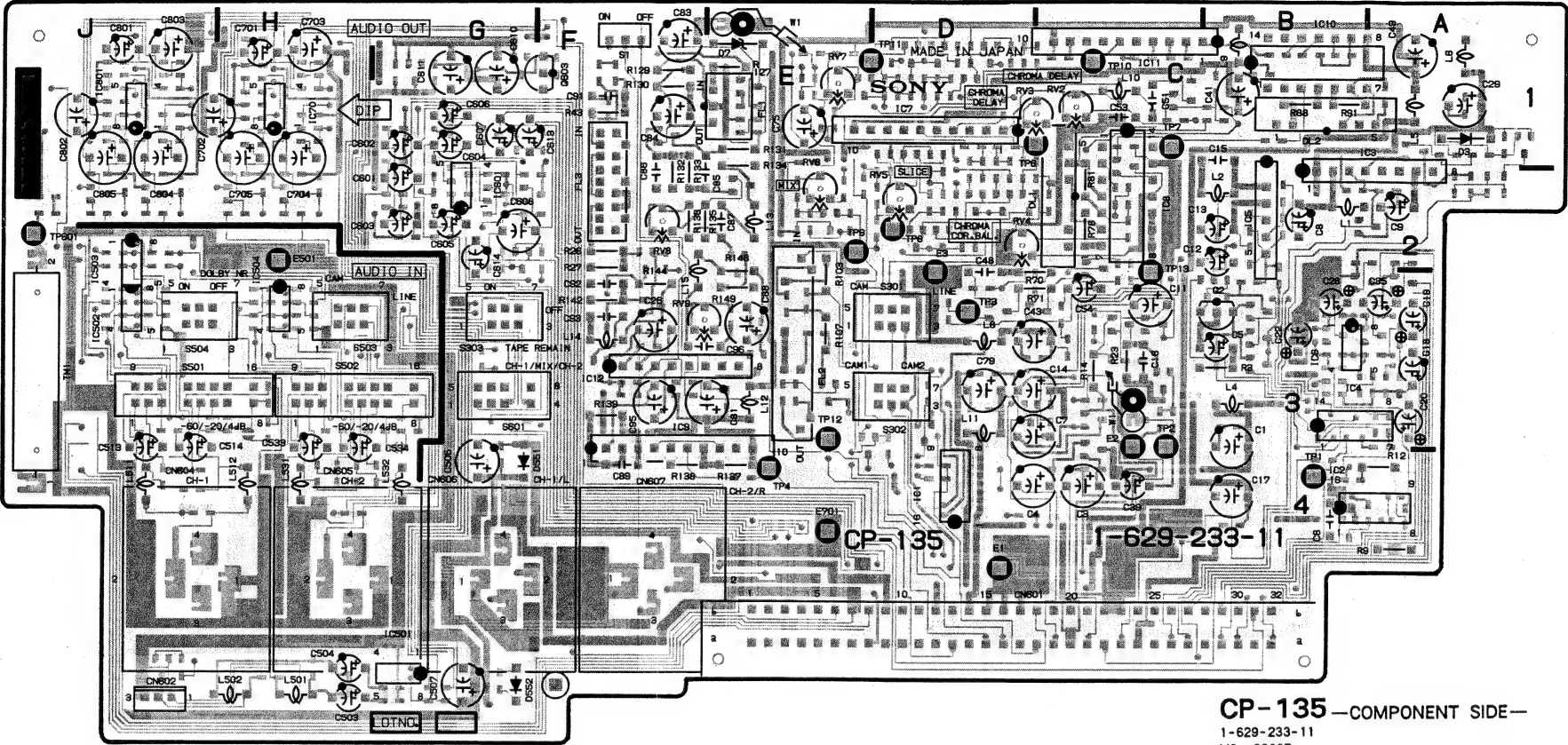


CP - 135 : Y/C SEPARATOR  
XLR IN/OUT AMPLIFIER, SELECT SWITCH

CP-135 (1-629-233-11)

CN601	C-4	S	Q26	E-2	S
CN602	J-4	C	Q27	D-1	S
CN604	J-4	C	Q28	E-3	S
CN605	H-4	C	Q29	D-1	S
CN606	G-4	C	Q30	D-1	S
CN607	F-4	C	Q31	D-1	S
			Q32	E-3	S
DL1	D-2	C	Q33	E-1	S
DL2	B-1	C	Q34	B-3	S
			Q35	B-3	S
D1	C-3	S	Q36	E-1	S
D3	A-1	C	Q37	F-1	S
D4	B-3	S	Q38	E-2	S
D5	A-3	S	Q39	F-2	S
D6	A-2	S	Q40	F-3	S
D7	E-1	C	Q41	E-2	S
D551	F-4	C	Q42	F-3	S
D552	G-4	C	Q43	E-3	S
D601	G-1	S	Q45	D-2	S
D602	G-1	S	Q501	J-4	S
D603	G-1	S	Q601	F-2	S
			Q602	G-2	S
E1	D-4	C	Q603	F-1	C
E2	D-3	C	Q604	G-2	S
E3	D-2	C	Q605	G-1	S
E501	H-2	C	Q701	H-2	S
E701	E-4	C	Q702	H-2	S
			Q801	J-2	S
			Q802	J-2	S
FL1	E-1	C	RV2	C-1	C
FL2	E-3	C	RV3	D-1	C
FL3	F-2	C	RV4	D-2	C
			RV5	D-2	C
IC1	D-4	C	RV6	E-1	C
IC2	B-4	C	RV7	E-1	C
IC3	B-1	C	RV8	F-2	C
IC4	B-3	C	RV9	F-3	C
IC5	B-2	C			
IC6	B-3	C			
IC7	D-1	C			
IC8	C-2	C	S1	F-1	C
IC9	F-3	C	S301	D-3	C
IC10	B-1	C	S302	D-3	C
IC11	C-1	C	S303	G-3	C
IC12	F-3	C	S501	J-3	C
IC501	G-4	C	S502	H-3	C
IC502	J-3	C	S503	H-3	C
IC503	J-3	C	S504	J-3	C
IC504	H-3	C	S601	G-3	C
IC601	G-2	C			
IC701	H-1	C	TP1	B-4	C
IC801	J-1	C	TP2	C-3	C
			TP3	D-3	C
Q1	B-1	S	TP4	E-4	C
Q2	B-3	C	TP6	D-1	C
Q3	C-3	S	TP7	C-1	C
Q4	D-3	S	TP8	D-2	C
Q5	C-3	S	TP9	E-2	C
Q9	A-1	S	TP10	C-1	C
Q11	A-1	S	TP11	D-1	C
Q12	B-3	S	TP12	E-3	C
Q13	A-3	S	TP13	C-2	C
Q14	D-3	S	TP601	J-2	C
Q15	A-3	S			
Q16	D-3	S			
Q17	C-1	S			
Q18	D-3	S			
Q19	C-2	S			
Q20	D-2	S			
Q21	C-2	S			
Q22	D-2	S			
Q23	D-2	S			
Q24	D-2	S			
Q25	D-2	S			

\*\*- C; COMPONENT SIDE  
\*\*- S; SOLDERING SIDE



CP-135 —COMPONENT SIDE—  
1-629-233-11  
VO - 8800P



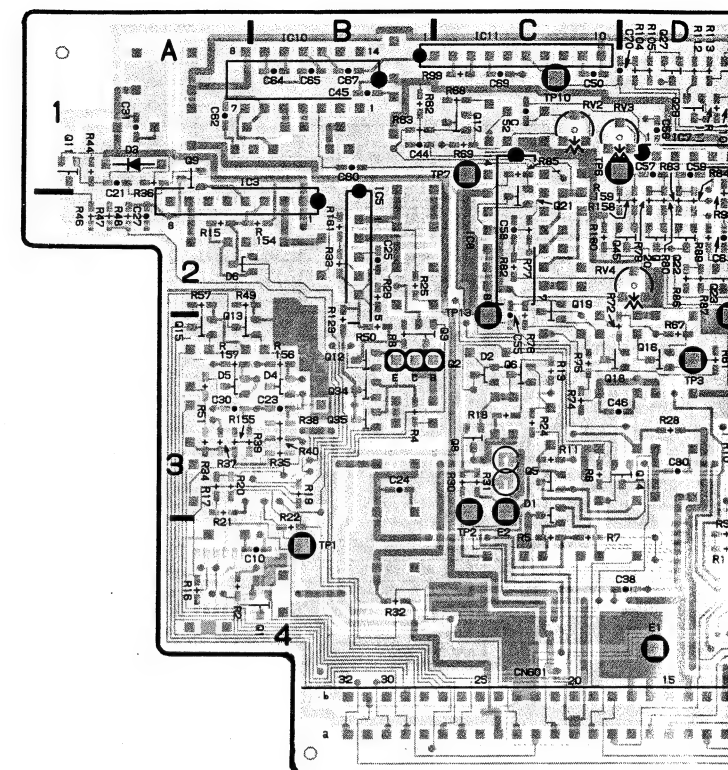
CP - 135 : Y/C SEPARATOR

XLR IN/OUT AMPLIFIER, SELECT SWITCH

CP-135 (1-629-233-11)

CN601	C-4	S	Q26	E-2	S
CN602	J-4	C	Q27	D-1	S
CN604	J-4	C	Q28	E-3	S
CN605	H-4	C	Q29	D-1	S
CN606	G-4	C	Q30	D-1	S
CN607	F-4	C	Q31	D-1	S
			Q32	E-3	S
DL1	D-2	C	Q33	E-1	S
DL2	B-1	C	Q34	B-3	S
			Q35	B-3	S
D1	C-3	S	Q36	E-1	S
D3	A-1	C	Q37	F-1	S
D4	B-3	S	Q38	E-2	S
D5	A-3	S	Q39	F-2	S
D6	A-2	S	Q40	F-3	S
D7	E-1	C	Q41	E-2	S
D551	F-4	C	Q42	F-3	S
D552	G-4	C	Q43	E-3	S
D601	G-1	S	Q45	D-2	S
D602	G-1	S	Q501	J-4	S
D603	G-1	S	Q601	F-2	S
			Q602	G-2	S
E1	D-4	C	Q603	F-1	C
E2	D-3	C	Q604	G-2	S
E3	D-2	C	Q605	G-1	S
E501	H-2	C	Q701	H-2	S
E701	E-4	C	Q702	H-2	S
			Q801	J-2	S
			Q802	J-2	S
FL1	E-1	C	RV2	C-1	C
FL2	E-3	C	RV3	D-1	C
FL3	F-2	C	RV4	D-2	C
			RV5	D-2	C
IC1	D-4	C	RV6	E-1	C
IC2	B-4	C	RV7	E-1	C
IC3	B-1	C	RV8	F-2	C
IC4	B-3	C	RV9	F-3	C
IC5	B-2	C			
IC6	B-3	C	S1	F-1	C
IC7	D-1	C	S301	D-3	C
IC8	C-2	C	S302	D-3	C
IC9	F-3	C	S303	G-3	C
IC10	B-1	C	S501	J-3	C
IC11	C-1	C	S502	H-3	C
IC12	F-3	C	S503	H-3	C
IC501	G-4	C	S504	J-3	C
IC502	J-3	C	S601	G-3	C
IC503	J-3	C			
IC504	H-3	C	TP1	B-4	C
IC601	G-2	C	TP2	C-3	C
IC701	H-1	C	TP3	D-3	C
IC801	J-1	C	TP4	E-4	C
Q1	B-1	S	TP6	D-1	C
Q2	B-3	C	TP7	C-1	C
Q3	C-3	S	TP8	D-2	C
Q4	D-3	S	TP9	E-2	C
Q5	C-3	S	TP10	C-1	C
Q9	A-1	S	TP11	D-1	C
Q11	A-1	S	TP12	E-3	C
Q12	B-3	S	TP13	C-2	C
Q13	A-3	S	TP601	J-2	C
Q14	D-3	S			
Q15	A-3	S			
Q16	D-3	S			
Q17	C-1	S			
Q18	D-3	S			
Q19	C-2	S			
Q20	D-2	S			
Q21	C-2	S			
Q22	D-2	S			
Q23	D-2	S			
Q24	D-2	S			
Q25	D-2	S			

\*\*\* C; COMPONENT SIDE  
\*\*\* S; SOLDERING SIDE



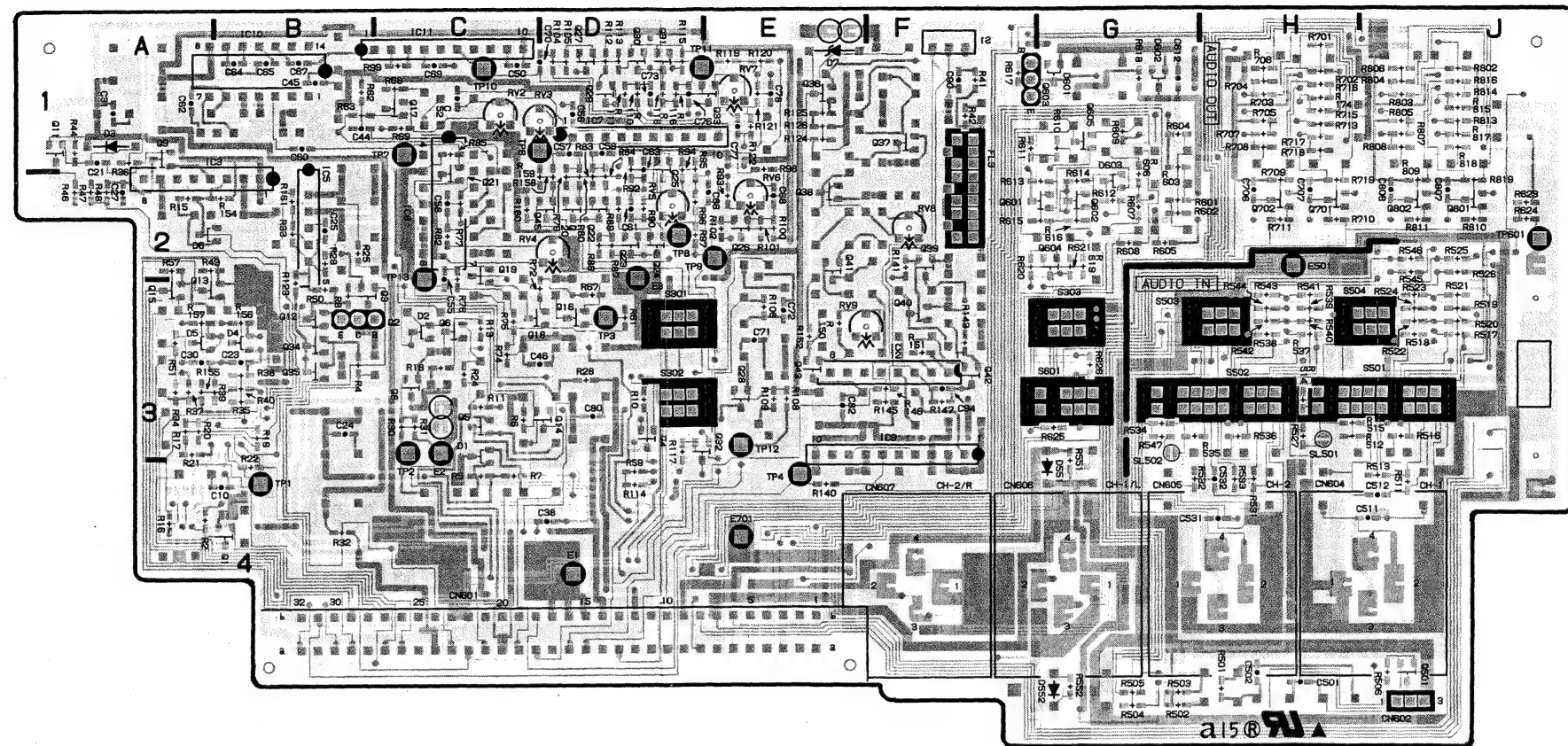
## CP - 135 : Y/C SEPARATOR

## XLR IN/OUT AMPLIFIER, SELECT SWITCH

CP-135 (1-629-233-11)

CN601	C-4	S	Q26	E-2	S
CN602	J-4	C	Q27	D-1	S
CN604	J-4	C	Q28	E-3	S
CN605	H-4	C	Q29	D-1	S
CN606	G-4	C	Q30	D-1	S
CN607	F-4	C	Q31	D-1	S
			Q32	E-3	S
DL1	D-2	C	Q33	E-1	S
DL2	B-1	C	Q34	B-3	S
			Q35	B-3	S
D1	C-3	S	Q36	E-1	S
D3	A-1	C	Q37	F-1	S
D4	B-3	S	Q38	E-2	S
D5	A-3	S	Q39	F-2	S
D6	A-2	S	Q40	F-3	S
D7	E-1	C	Q41	E-2	S
D551	F-4	C	Q42	F-3	S
D552	G-4	C	Q43	E-3	S
D601	G-1	S	Q45	D-2	S
D602	G-1	S	Q501	J-4	S
D603	G-1	S	Q601	F-2	S
			Q602	G-2	S
E1	D-4	C	Q603	F-1	C
E2	D-3	C	Q604	G-2	S
E3	D-2	C	Q605	G-1	S
E501	H-2	C	Q701	H-2	S
E701	E-4	C	Q702	H-2	S
			Q801	J-2	S
			Q802	J-2	S
FL1	E-1	C			
FL2	E-3	C			
FL3	F-2	C			
			RV2	C-1	C
			RV3	D-1	C
IC1	D-4	C	RV4	D-2	C
IC2	B-4	C	RV5	D-2	C
IC3	B-1	C	RV6	E-1	C
IC4	B-3	C	RV7	E-1	C
IC5	B-2	C	RV8	F-2	C
IC6	B-3	C	RV9	F-3	C
IC7	D-1	C			
IC8	C-2	C	S1	F-1	C
IC9	F-3	C	S301	D-3	C
IC10	B-1	C	S302	D-3	C
IC11	C-1	C	S303	G-3	C
IC12	F-3	C	S501	J-3	C
IC501	G-4	C	S502	H-3	C
IC502	J-3	C	S503	H-3	C
IC503	J-3	C	S504	J-3	C
IC504	H-3	C	S501	G-3	C
IC601	G-2	C			
IC701	H-1	C	TP1	B-4	C
IC801	J-1	C	TP2	C-3	C
			TP3	D-3	C
Q1	B-1	S	TP4	E-4	C
Q2	B-3	C	TP6	D-1	C
Q3	C-3	S	TP7	C-1	C
Q4	D-3	S	TP8	D-2	C
Q5	C-3	S	TP9	E-2	C
Q9	A-1	S	TP10	C-1	C
Q11	A-1	S	TP11	D-1	C
Q12	B-3	S	TP12	E-3	C
Q13	A-3	S	TP13	C-2	C
Q14	D-3	S	TP601	J-2	C
Q15	A-3	S			
Q16	D-3	S			
Q17	C-1	S			
Q18	D-3	S			
Q19	C-2	S			
Q20	D-2	S			
Q21	C-2	S			
Q22	D-2	S			
Q23	D-2	S			
Q24	D-2	S			
Q25	D-2	S			

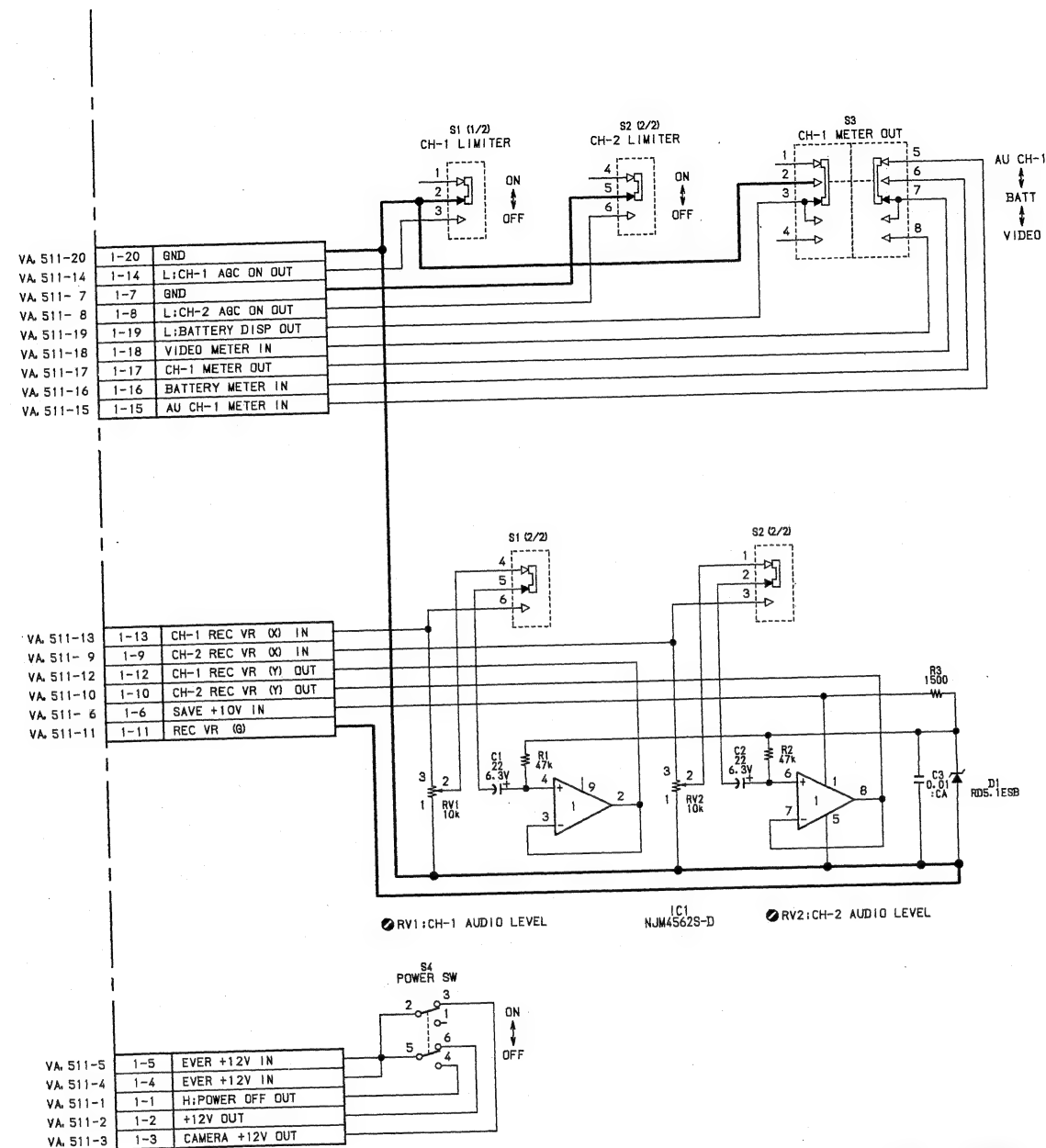
\*\*\* C; COMPONENT SIDE  
\*\*\* S; SOLDERING SIDE



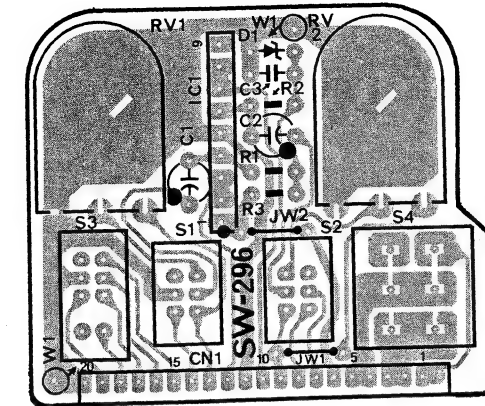
CP - 135 — SOLDERING SIDE —  
1-629-233-11  
VO - 8800P



SW - 296 : AUDIO LEVEL, POWER SWITCH, SELECT SWITCH

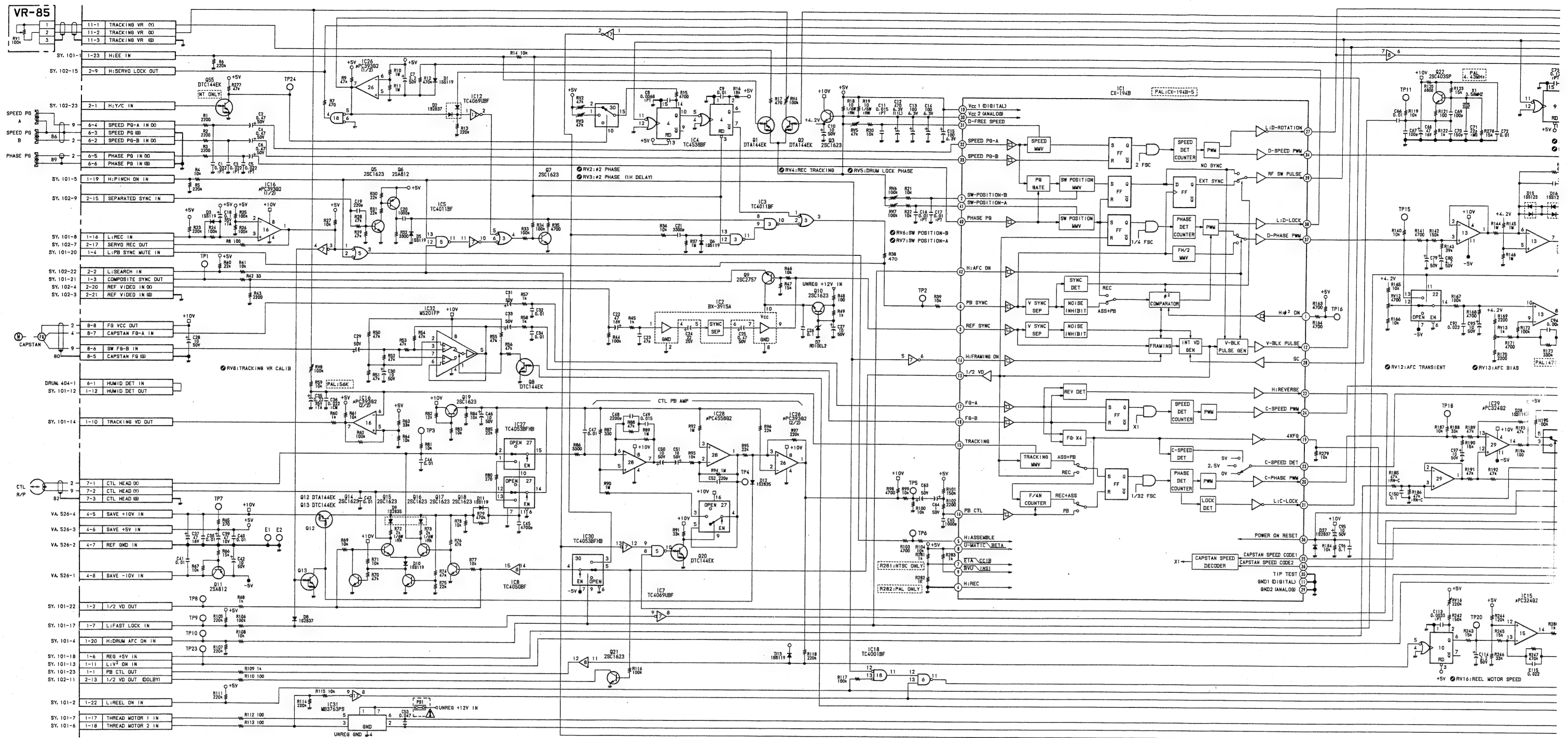


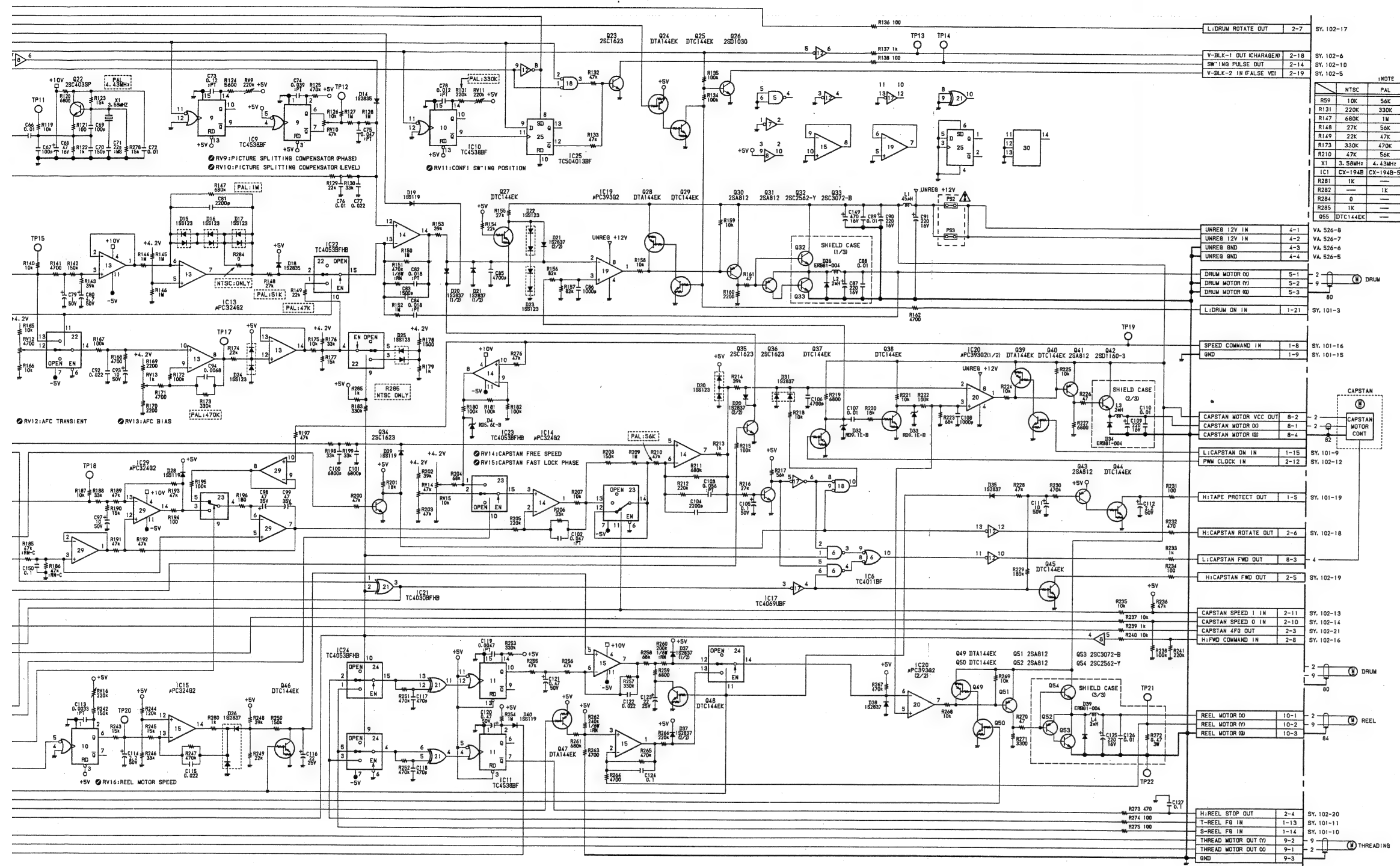
SW - 296  
1-629-246-11, 12  
VO-8800P



SW - 296 —COMPONENT SIDE—  
1-629-246-12  
VO-8800P

## SV - 108A : DRUM/CAPSTAN/REEL SERVO





**SV - 108A**  
1-629-244-21,22  
VO-8800P

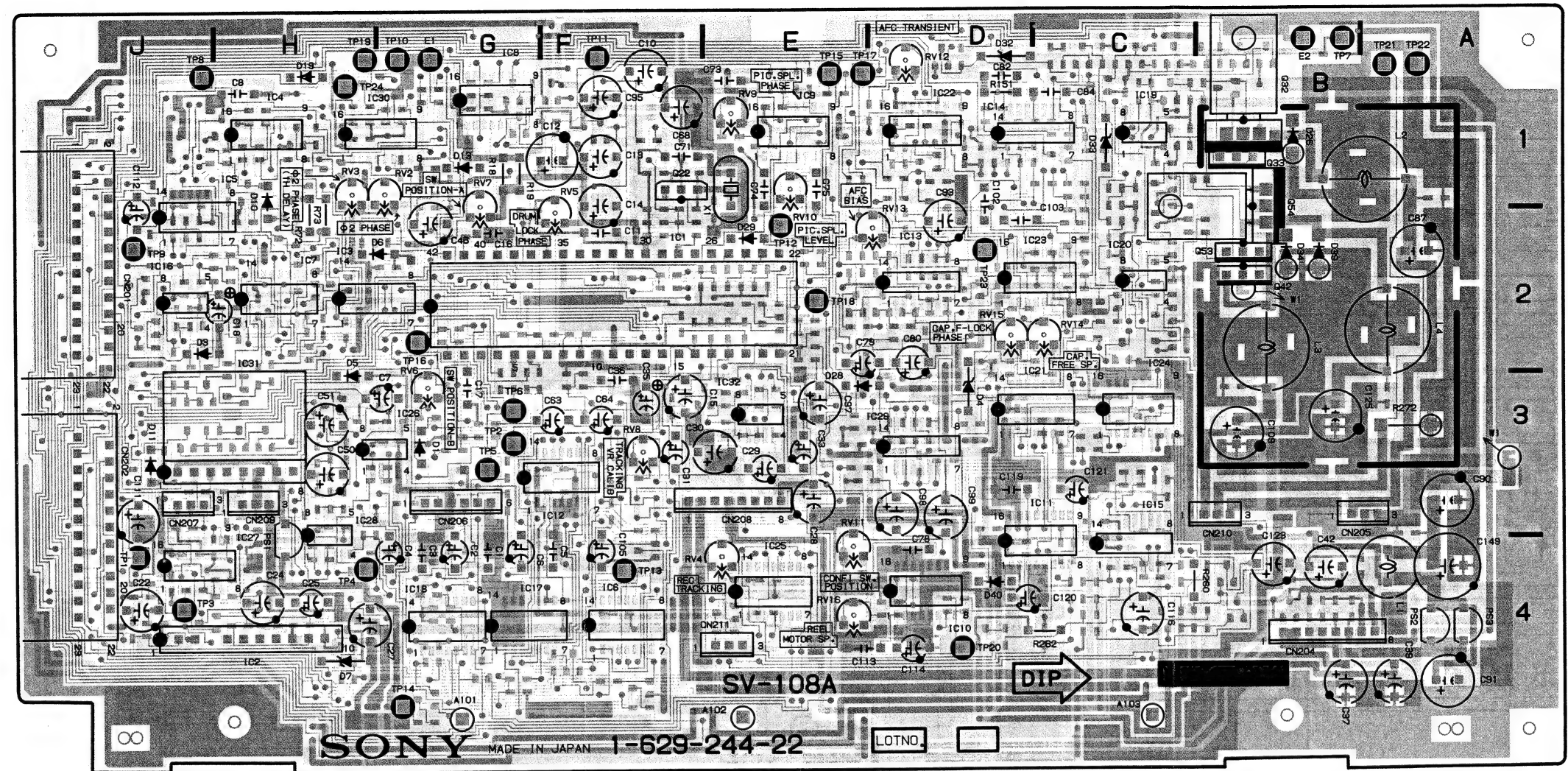
**NOTE:**  
The  $\Delta$ -marked components are critical to safety.  
Replace only with same components as specified.

## SV - 108A : DRUM/CAPSTAN/REEL SERVO

SV-108A (1-629-244-21, 22)

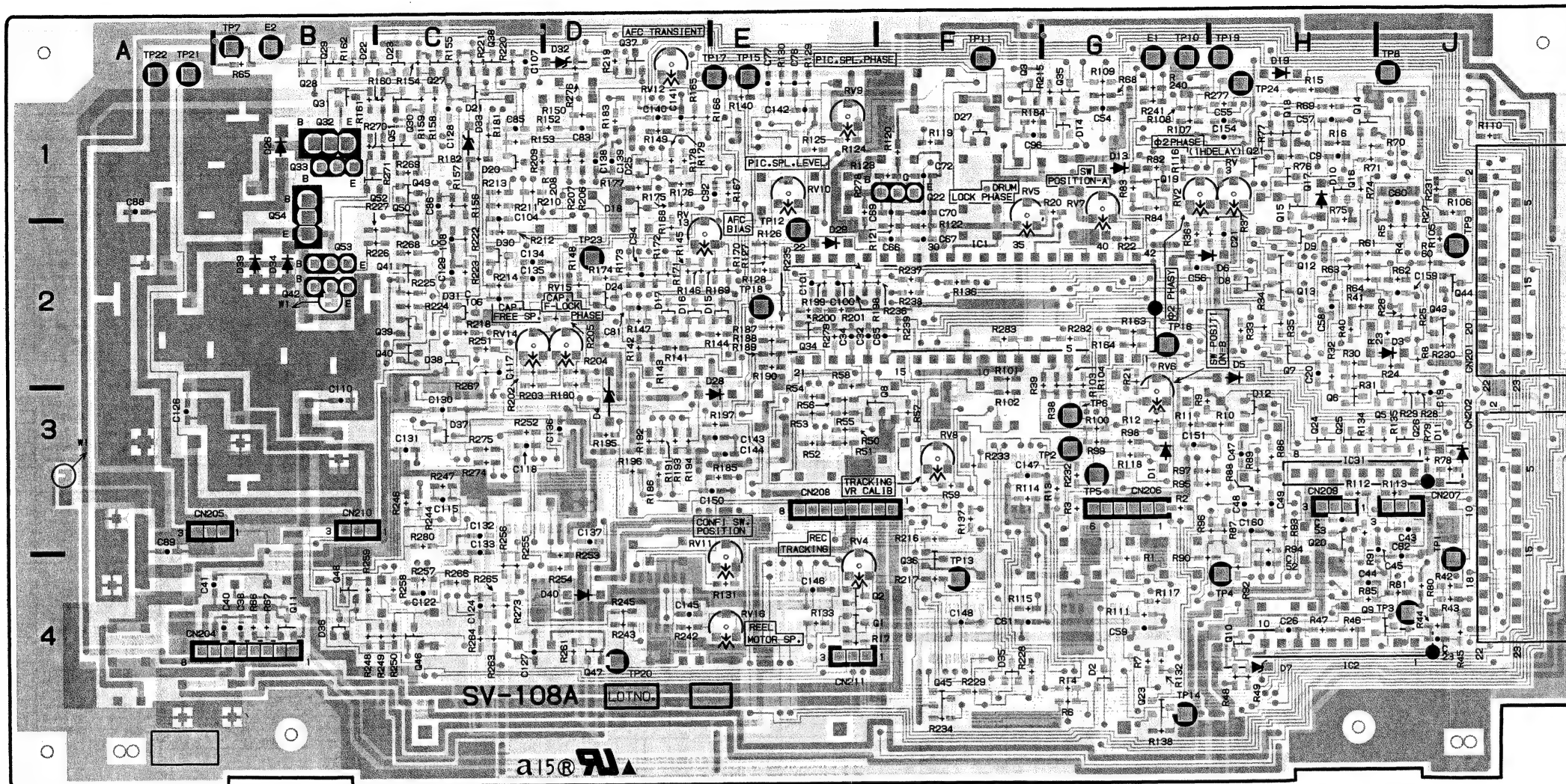
CN201	J-2 C	IC19	C-1 C	RV7	G-1 C
CN202	J-3 C	IC20	C-2 C	RV8	F-3 C
CN204	B-4 C	IC21	D-3 C	RV9	E-1 C
CN205	B-3 C	IC22	D-1 C	RV10	E-2 C
CN206	G-3 C	IC23	D-2 C	RV11	E-3 C
CN207	J-3 C	IC24	C-2 C	RV12	D-1 C
CN208	E-3 C	IC25	E-4 C	RV13	D-1 C
CN209	H-3 C	IC26	G-3 C	RV14	C-2 C
CN210	B-3 C	IC27	H-3 C	RV15	D-2 C
CN211	E-4 C	IC28	H-3 C	RV16	E-4 C
		IC29	D-3 C		
D1	G-3 C	IC30	H-1 C	TP1	J-3 C
D2	G-4 S	IC31	H-2 C	TP2	G-3 C
D3	J-2 C	IC32	E-3 C	TP3	J-4 C
D4	D-3 C			TP4	H-4 C
D5	H-2 C	Q1	F-4 S	TP5	G-3 C
D6	H-2 C	Q2	F-4 S	TP6	G-3 C
D7	H-4 C	Q3	F-1 S	TP7	B-1 C
D8	H-2 S	Q5	J-3 S	TP8	J-1 C
D9	H-2 S	Q6	H-3 S	TP9	J-2 C
D10	H-1 C	Q7	H-2 S	TP10	G-1 C
D11	J-3 C	Q8	F-3 S	TP11	F-1 C
D12	H-3 S	Q9	H-4 S	TP12	E-2 C
D13	G-1 C	Q10	H-4 S	TP13	F-4 C
D14	G-1 S	Q11	B-4 S	TP14	G-4 C
D15	E-2 S	Q12	H-2 S	TP15	E-1 C
D16	D-2 S	Q13	H-2 S	TP16	G-2 C
D17	D-2 S	Q14	H-1 S	TP17	E-1 C
D18	D-1 S	Q15	H-1 S	TP18	E-2 C
D19	H-1 C	Q16	H-1 S	TP19	H-1 C
D20	C-1 S	Q17	H-1 S	TP20	D-4 C
D21	C-1 S	Q18	H-1 S	TP21	A-1 C
D22	B-1 S	Q19	G-1 S	TP22	A-1 C
D23	C-1 S	Q20	H-3 S	TP23	D-2 C
D24	D-2 S	Q21	H-1 S	TP24	H-1 C
D25	D-1 S	Q22	F-1 C		
D26	B-1 C	Q23	G-4 S	X1	E-1 C
D27	F-1 S	Q24	H-3 S		
D28	E-3 C	Q25	H-3 S		
D29	E-2 C	Q26	J-3 S		
D30	C-2 S	Q27	C-1 S		
D31	C-2 S	Q28	B-1 S		
D32	D-1 C	Q29	B-1 S		
D33	C-1 C	Q30	C-1 S		
D34	B-2 C	Q31	B-1 S		
D35	F-4 S	Q32	B-1 C		
D36	B-4 S	Q33	B-1 C		
D37	C-3 S	Q34	E-2 S		
D38	C-2 S	Q35	G-1 S		
D39	B-2 C	Q36	F-4 S		
D40	D-4 C	Q37	D-1 S		
		Q38	C-1 S		
E1	G-1 C	Q39	C-2 S		
E2	B-1 C	Q40	C-2 S		
		Q41	C-2 S		
IC1	F-2 C	Q42	B-2 C		
IC2	H-4 C	Q43	J-2 S		
IC3	H-2 C	Q44	J-2 S		
IC4	H-1 C	Q45	F-4 S		
IC5	H-1 C	Q46	C-4 S		
IC6	F-4 C	Q47	D-4 S		
IC7	H-2 C	Q48	B-4 S		
IC8	G-1 C	Q49	C-1 S		
IC9	E-1 C	Q50	C-1 S		
IC10	D-4 C	Q51	C-1 S		
IC11	C-3 C	Q52	B-1 S		
IC12	F-3 C	Q53	B-2 C		
IC13	D-2 C	Q54	B-1 C		
IC14	D-1 C	RV2	G-1 C		
IC15	C-3 C	RV3	H-1 C		
IC16	J-2 C	RV4	F-4 C		
IC17	G-4 C	RV5	F-1 C		
IC18	G-4 C	RV6	G-2 C		

-- C: COMPONENT SIDE  
 -- S: SOLDERING SIDE



**SV-108A** - COMPONENT SIDE -  
 1-629-244-21, 22  
 VO-8800P



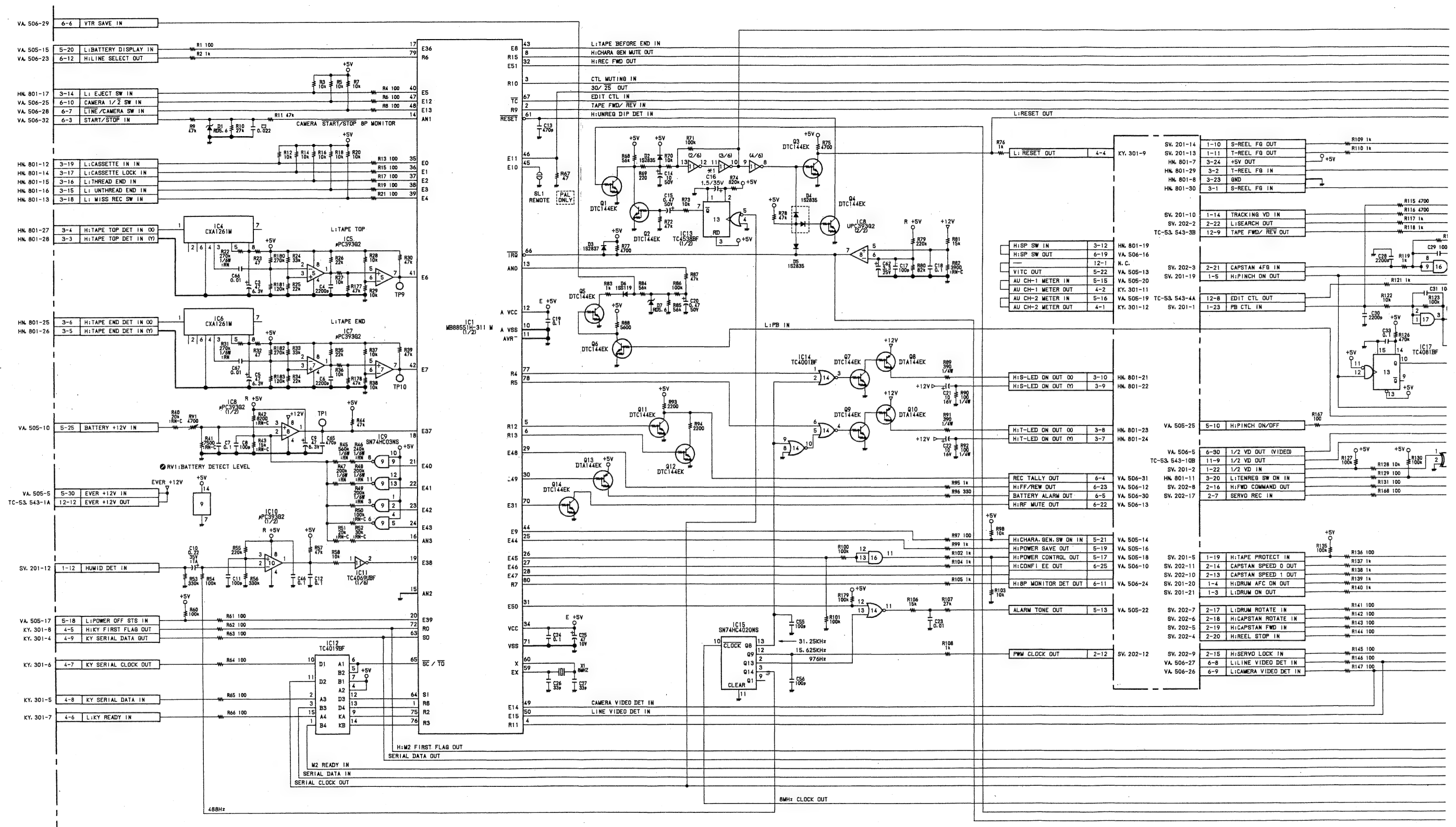


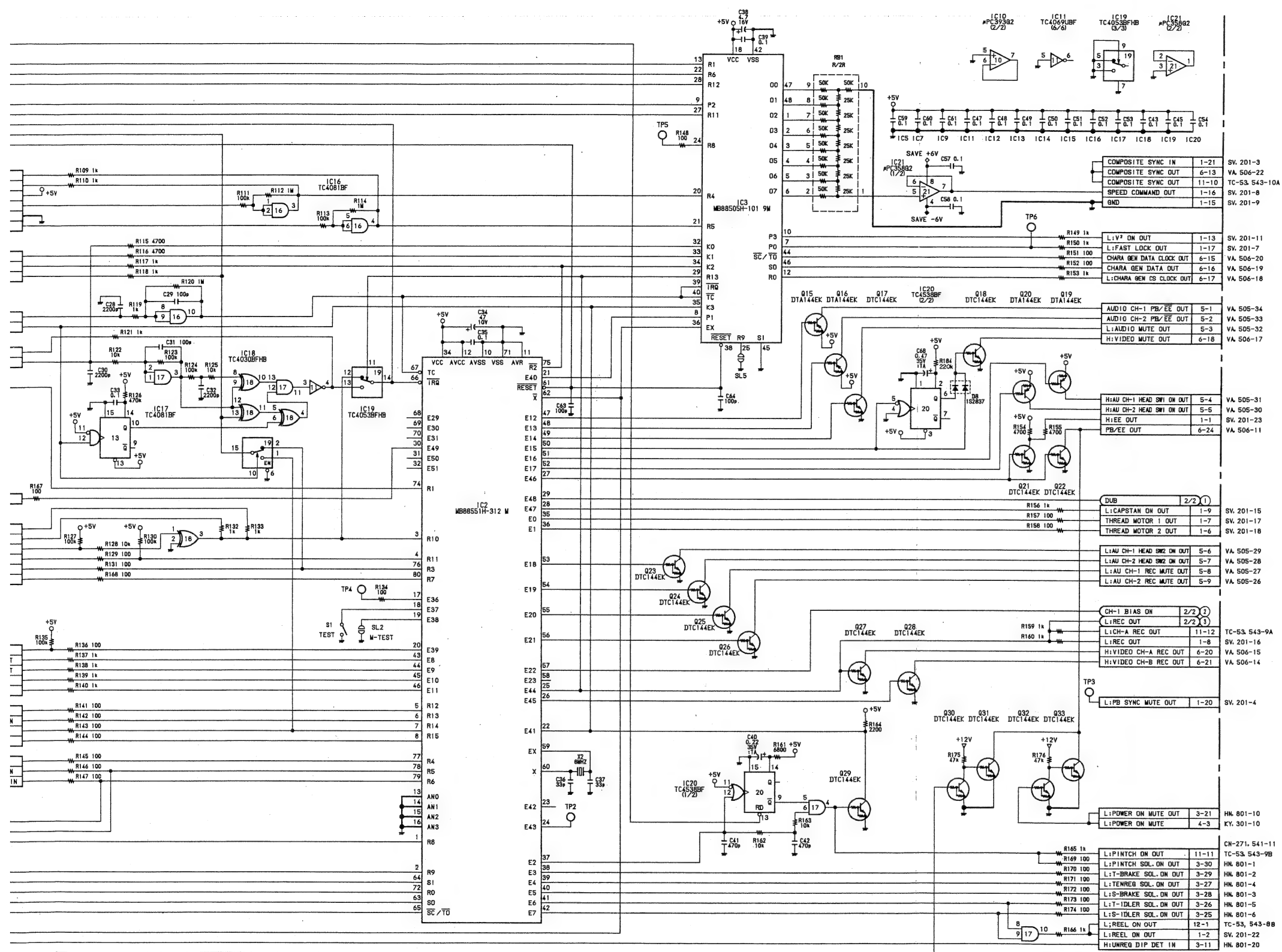
SV-108A - SOLDERING SIDE -  
1-629-244-21, 22  
VO-8800P

**SY - 131A (1/2) : SYSTEM CONTROL**

### NOTE

MARK	CHANGE INFORMATION	SERIAL NO.
#1	C16 0.1 → 1.5/35V	S/N 11451 ~





**SY-131A (1/2)**  
 1-629-243-11,12,13,14  
 VO-8800P



## SY - 131A : SYSTEM CONTROL

ERASE/BIAS OSCILLATOR

TIME CODE REC/PB AMPLIFIER

S/N 10001 through 10300

SY-131A (1-629-243-11)

CN101	A-2 C	Q16	G-5 S
CN102	A-3 C	Q17	G-4 S
CN103	L-2 C	Q18	C-5 S
CN104	L-1 S	Q19	G-5 S
CN105	F-5 C	Q20	F-5 S
CN106	C-4 C	Q21	A-3 S
CN111	D-4 C	Q22	B-5 S
CN112	C-4 C	Q23	F-4 S
CN113	F-4 C	Q24	F-4 S
CN114	D-2 C	Q25	F-4 S
CN115	C-2 C	Q26	F-4 S
CN116	C-2 C	Q27	C-5 S

CP201	D-1 C	Q28	C-4 S
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CV201	B-2 C	Q29	A-4 S
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D1	C-5 C	Q30	K-1 S
D2	F-1 S	Q31	K-1 S
D3	E-1 S	Q32	L-1 S
D4	E-1 S	Q33	K-1 S
D5	F-1 S	Q201	C-1 S
D6	G-1 C	Q202	D-1 S
D7	H-1 C	Q203	D-1 S
D201	B-1 C	Q204	D-1 S
D202	D-2 S	Q205	B-2 S
D203	D-1 S	Q206	B-2 S
		Q207	B-1 S
		Q208	D-4 S
		Q209	D-1 S

E201	C-2 C	RV1	G-2 C
E202	F-4 C	RV201	B-2 C

IC1	F-2 C	RV202	B-2 C
IC2	D-3 C	RV204	D-4 C
IC3	C-2 C	RV205	B-2 C

IC4	K-2 C	S1	E-1 C
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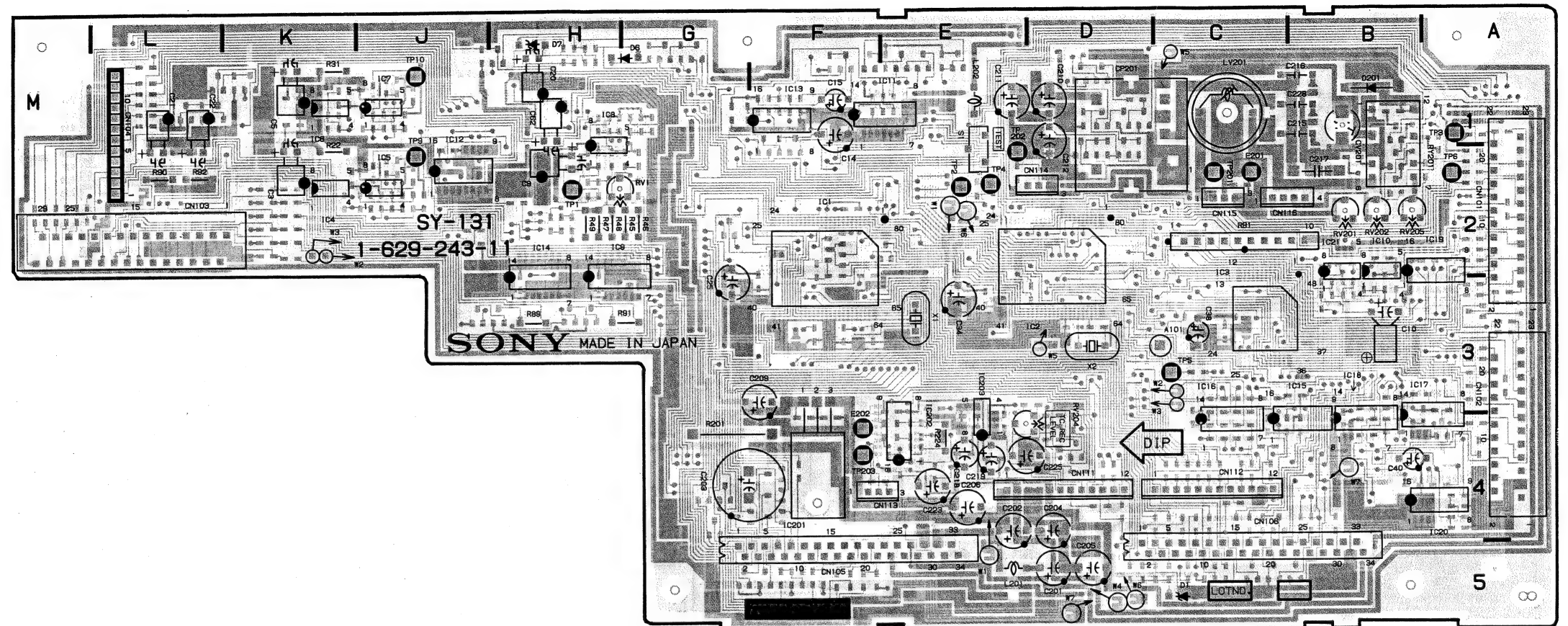
IC5	J-2 C	TP1	H-2 C
IC6	K-1 C	TP2	E-2 C
IC7	J-1 C	TP3	A-1 C
IC8	H-1 C	TP4	E-2 C
IC9	H-2 C	TP5	C-3 C
IC10	B-2 C	TP6	A-2 C
IC11	E-1 C	TP9	J-1 C
IC12	J-1 C	TP10	J-1 C
IC13	F-1 C	TP201	C-2 C
IC14	H-2 C	TP202	E-1 C
IC15	B-3 C	TP203	F-4 C
IC16	C-3 C		

IC17	B-3 C	X1	E-3 C
IC18	B-3 C	X2	D-3 C

IC19	A-2 C		
IC20	A-4 C		
IC21	B-2 C		
IC201	F-4 C	** C; COMPONENT SIDE	
IC202	E-3 C	** S; SOLDERING SIDE	
IC203	E-3 C		

LV201	C-1 C		
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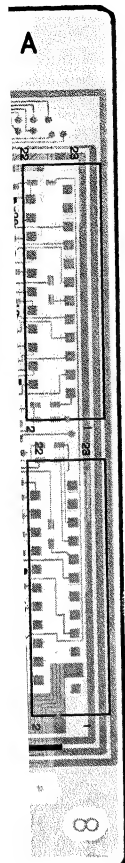
Q1	F-1 S		
Q2	F-1 S		
Q3	H-1 S		
Q4	E-1 S		
Q5	G-1 S		
Q6	G-1 S		
Q7	J-3 S		
Q8	H-3 S		
Q9	H-3 S		
Q10	H-3 S		
Q11	F-2 S		
Q12	F-2 S		
Q13	G-2 S		
Q14	E-2 S		
Q15	G-4 S		



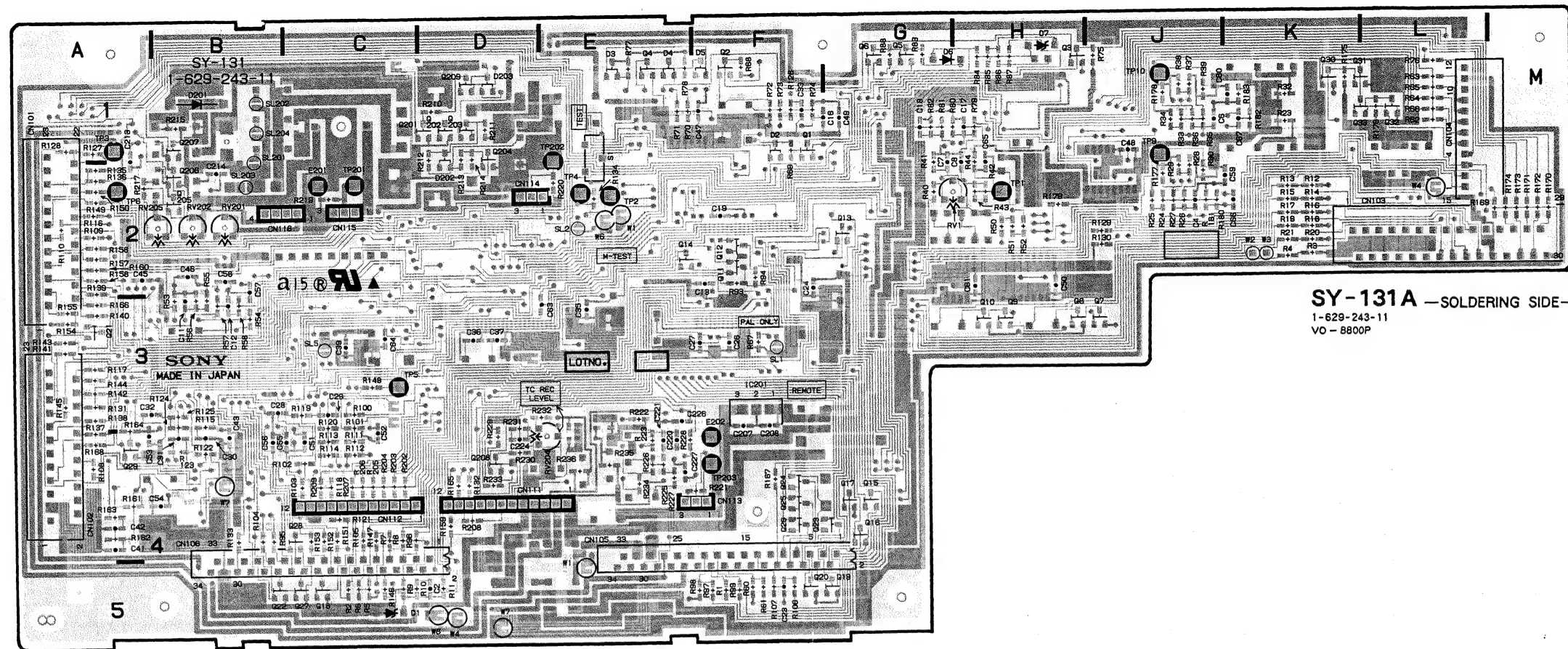
SY-131A —COMPONENT SIDE—

1-629-243-11  
VO - 8800P





NT SIDE—



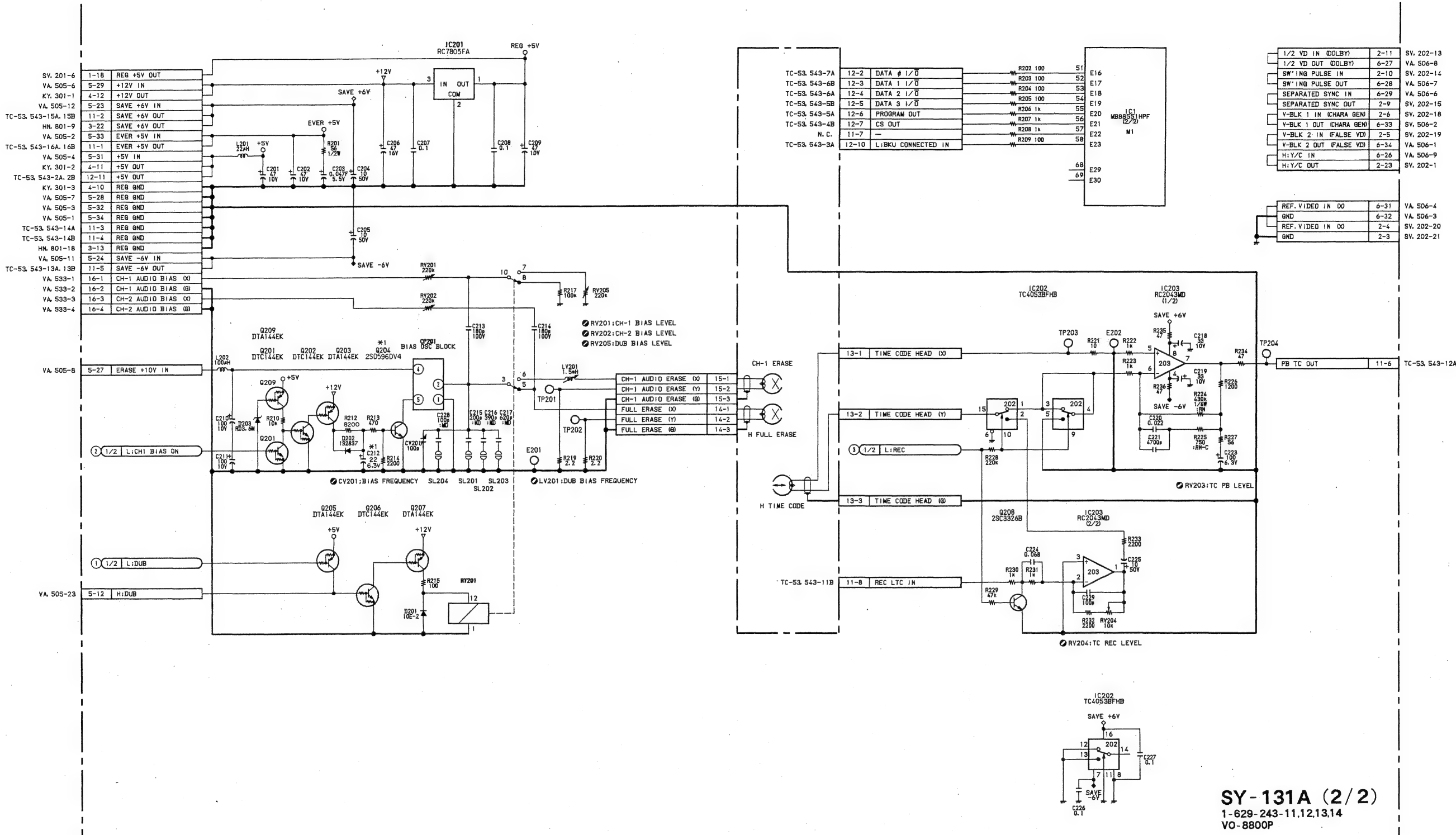
SY-131A —SOLDERING SIDE—  
1-629-243-11  
VO - 8800P

SY - 131A (2/2) : ERASE/BIAS OSCILLATOR

TIME CODE REC/PB AMPLIFIER

NOTE

MARK	CHANGE INFORMATION	SERIAL NO.
#1	C212 10/50V → 22/6.3V Q204 2SC2712-G → 2SD596DV4	S/N 10651 ~



## SY - 131A : SYSTEM CONTROL

ERASE/BIAS OSCILLATOR

TIME CODE REC/PB AMPLIFIER

S/N 10001 through 10300

SY-131A (1-629-243-11)

CN101	A-2 C	Q16	G-5 S
CN102	A-3 C	Q17	G-4 S
CN103	L-2 C	Q18	C-5 S
CN104	L-1 S	Q19	G-5 S
CN105	F-5 C	Q20	F-5 S
CN106	C-4 C	Q21	A-3 S
CN111	D-4 C	Q22	B-5 S
CN112	C-4 C	Q23	F-4 S
CN113	F-4 C	Q24	F-4 S
CN114	D-2 C	Q25	F-4 S
CN115	C-2 C	Q26	F-4 S
CN116	C-2 C	Q27	C-5 S

CP201 D-1 C

CV201 B-2 C

D1 C-5 C

D2 F-1 S

D3 E-1 S

D4 E-1 S

D5 F-1 S

D6 G-1 C

D7 H-1 C

D201 B-1 C

D202 D-2 S

D203 D-1 S

E201 C-2 C

E202 F-4 C

IC1 F-2 C

IC2 D-3 C

IC3 C-2 C

IC4 K-2 C

IC5 J-2 C

IC6 K-1 C

IC7 J-1 C

IC8 H-1 C

IC9 H-2 C

IC10 B-2 C

IC11 E-1 C

IC12 J-1 C

IC13 F-1 C

IC14 H-2 C

IC15 B-3 C

IC16 C-3 C

IC17 B-3 C

IC18 B-3 C

IC19 A-2 C

IC20 A-4 C

IC21 B-2 C

IC201 F-4 C

IC202 E-3 C

IC203 E-3 C

LV201 C-1 C

Q1 F-1 S

Q2 F-1 S

Q3 H-1 S

Q4 E-1 S

Q5 G-1 S

Q6 G-1 S

Q7 J-3 S

Q8 H-3 S

Q9 H-3 S

Q10 H-3 S

Q11 F-2 S

Q12 F-2 S

Q13 G-2 S

Q14 E-2 S

Q15 G-4 S

Q16	G-5 S
Q17	G-4 S
Q18	C-5 S
Q19	G-5 S
Q20	F-5 S
Q21	A-3 S
Q22	B-5 S
Q23	F-4 S
Q24	F-4 S
Q25	F-4 S
Q26	F-4 S
Q27	C-5 S
Q28	C-4 S
Q29	A-4 S
Q30	K-1 S
Q31	K-1 S
Q32	L-1 S
Q33	K-1 S
Q201	C-1 S
Q202	D-1 S
Q203	D-1 S
Q204	D-1 S
Q205	B-2 S
Q206	B-2 S
Q207	B-1 S
Q208	D-4 S
Q209	D-1 S

RV1	G-2 C
RV201	B-2 C
RV202	B-2 C
RV204	D-4 C
RV205	B-2 C

S1 E-1 C

TP1 H-2 C

TP2 E-2 C

TP3 A-1 C

TP4 E-2 C

TP5 C-3 C

TP6 A-2 C

TP9 J-1 C

TP10 J-1 C

TP201 C-2 C

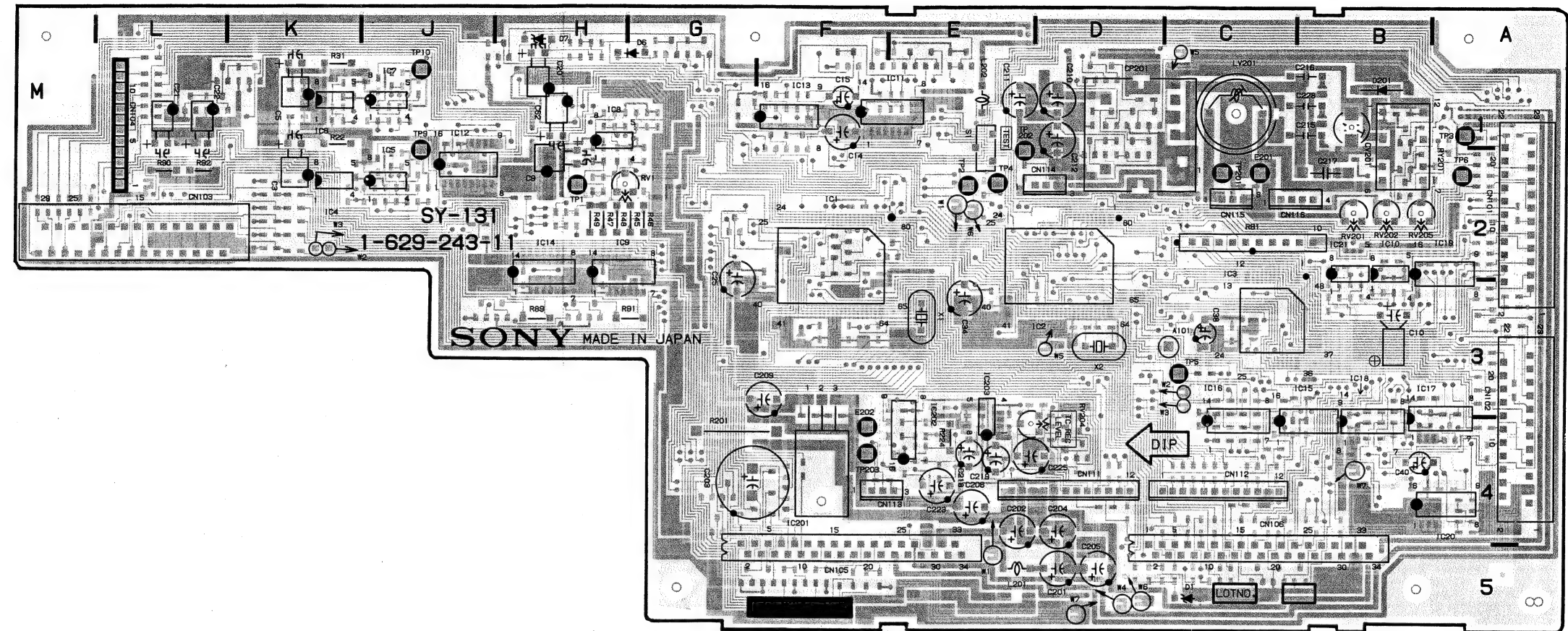
TP202 E-1 C

TP203 F-4 C

X1 E-3 C

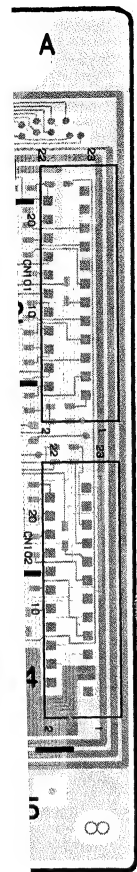
X2 D-3 C

\*\* C; COMPONENT SIDE  
 \*\* S; SOLDERING SIDE

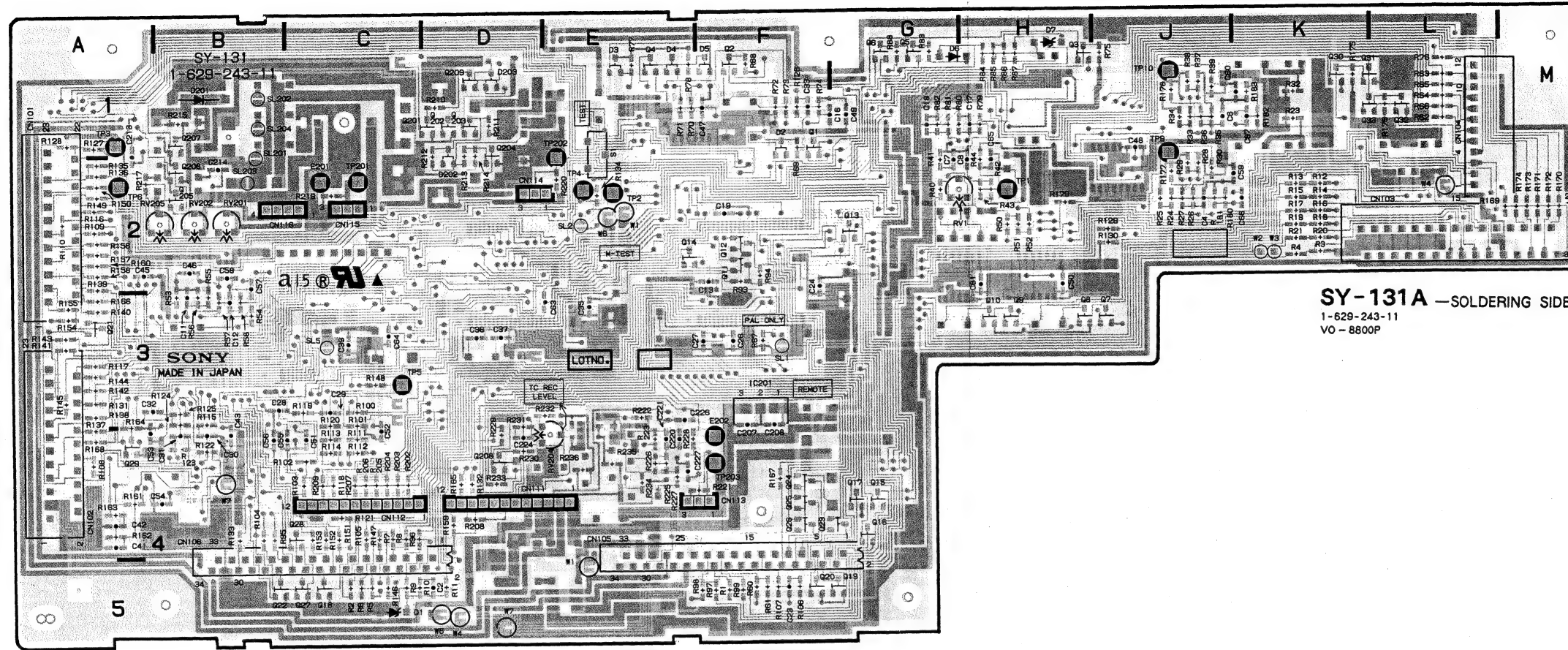


SY-131A — COMPONENT SIDE —  
 1-629-243-11  
 VO - 8800P





ENT SIDE—



SY-131A —SOLDERING SIDE—  
1-629-243-11  
VO - 8800P

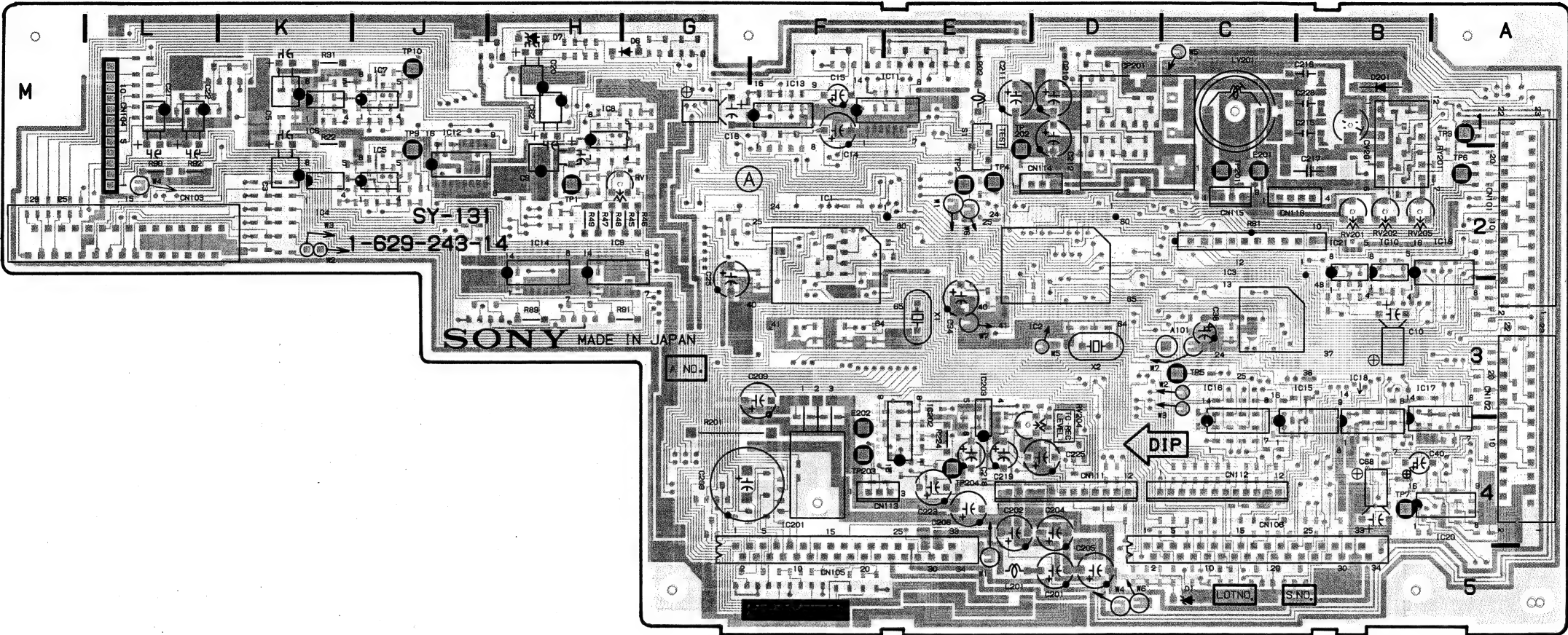
SY - 131A : SYSTEM CONTROL  
ERASE/BIAS OSCILLATOR  
TIME CODE REC/PB AMPLIFIER

S/N 10301 and higher

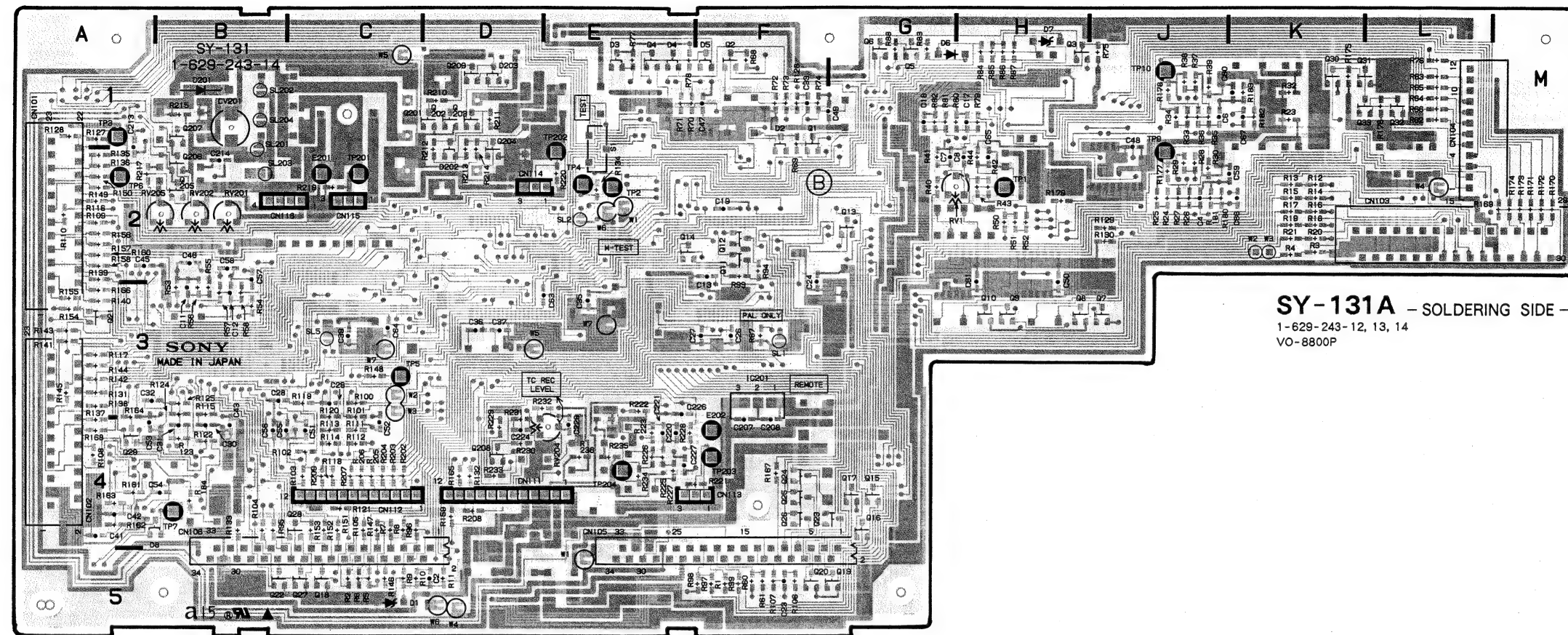
SY-131A (1-629-243-12, 13, 14)

CN101	A-2 C	Q15	G-4 S
CN102	A-3 C	Q16	G-5 S
CN103	L-2 C	Q17	G-4 S
CN104	L-1 S	Q18	C-5 S
CN105	F-5 C	Q19	G-5 S
CN106	C-4 C	Q20	F-5 S
CN111	D-4 C	Q21	A-3 S
CN112	C-4 C	Q22	B-5 S
CN113	F-4 C	Q23	F-4 S
CN114	D-2 C	Q24	F-4 S
CN115	C-2 C	Q25	F-4 S
CN116	C-2 C	Q26	F-4 S
		Q27	C-5 S
CP201	D-1 C	Q28	C-4 S
		Q29	A-4 S
CV201	B-2 C	Q30	K-1 S
		Q31	K-1 S
		Q32	L-1 S
D1	C-5 C	Q33	K-1 S
D2	F-1 S	Q201	C-1 S
D3	E-1 S	Q202	D-1 S
D4	E-1 S	Q203	D-1 S
D5	F-1 S	Q204	D-1 S
D6	G-1 C	Q205	B-2 S
D7	H-1 C	Q206	B-2 S
D8	B-5 S	Q207	B-1 S
D201	B-1 C	Q208	D-4 S
D202	D-2 S	Q209	D-1 S
D203	D-1 S		
E201	C-2 C	RB1	C-2 C
E202	F-4 C		
		RV1	G-2 C
IC1	F-2 C	RV201	B-2 C
IC2	D-3 C	RV202	B-2 C
IC3	C-2 C	RV204	D-4 C
IC4	K-2 C	RV205	B-2 C
IC5	J-2 C		
IC6	K-1 C	RY201	A-2 C
IC7	J-1 C		
IC8	H-1 C	S1	E-1 C
IC9	H-2 C		
IC10	B-2 C	TP1	H-2 C
IC11	E-1 C	TP2	E-2 C
IC12	J-1 C	TP3	A-1 C
IC13	F-1 C	TP4	E-2 C
IC14	H-2 C	TP5	C-3 C
IC15	B-3 C	TP6	A-2 C
IC16	C-3 C	TP7	B-4 C
IC17	B-3 C	TP9	J-1 C
IC18	B-3 C	TP10	J-1 C
IC19	A-2 C	TP201	C-2 C
IC20	A-4 C	TP202	E-1 C
IC21	B-2 C	TP203	F-4 C
IC201	F-4 C	TP204	E-4 C
IC202	E-3 C		
IC203	E-3 C	X1	E-3 C
		X2	D-3 C
LV201	C-1 C		
Q1	F-1 S		
Q2	F-1 S		
Q3	H-1 S		
Q4	E-1 S		
Q5	G-1 S		
Q6	G-1 S		
Q7	J-3 S		
Q8	H-3 S		
Q9	H-3 S		
Q10	H-3 S		
Q11	F-2 S		
Q12	F-2 S		
Q13	C-2 S		
Q14	E-2 S		

\*-C; COMPONENT SIDE  
\*-S; SOLDERING SIDE



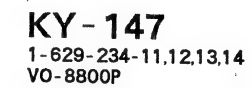
SY-131A - COMPONENT SIDE -  
1-629-243-12, 13, 14  
VO-8800P



SY-131A - SOLDERING SIDE -  
1-629-243-12, 13, 14  
VO-8800P



## KY-147 : FUNCTION KEY/LCD DISPLAY

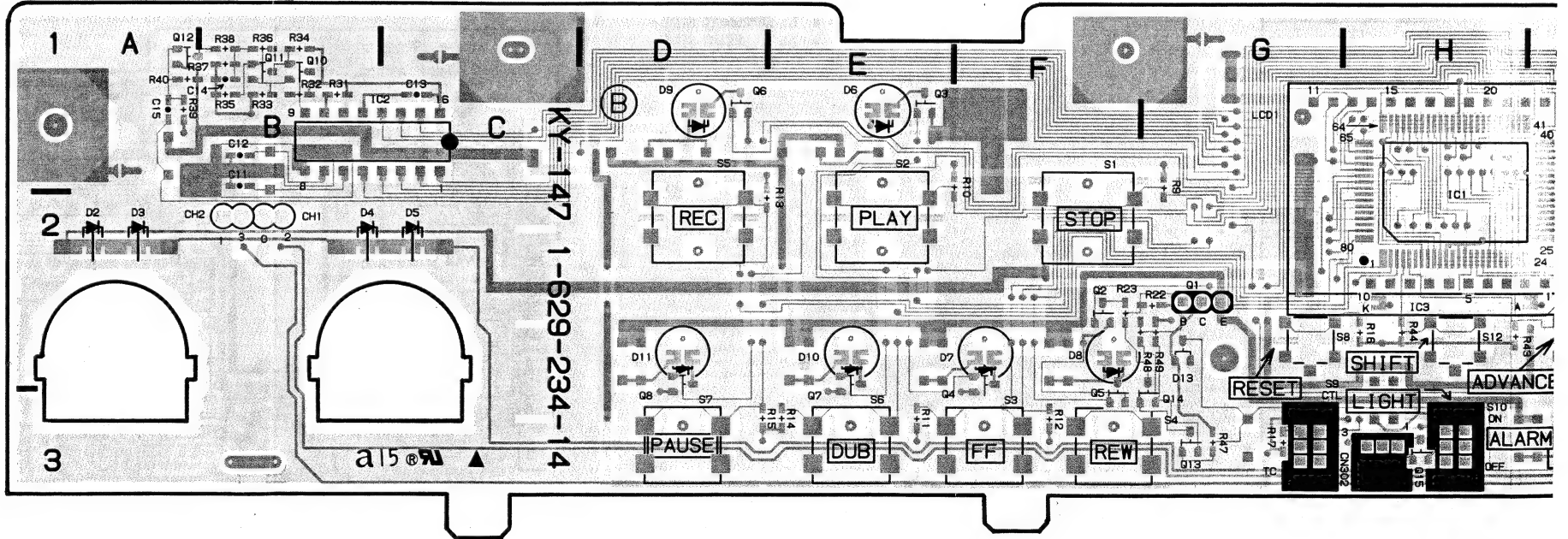
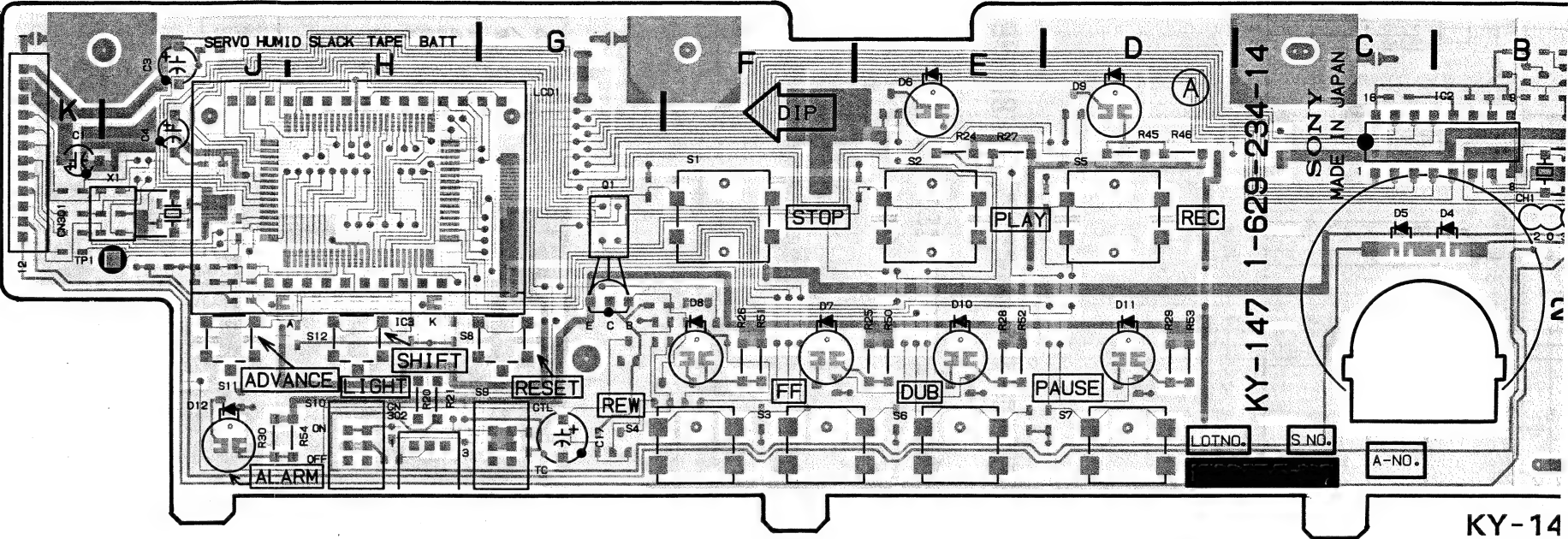


KY - 147 : FUNCTION KEY/LCD DISPLAY

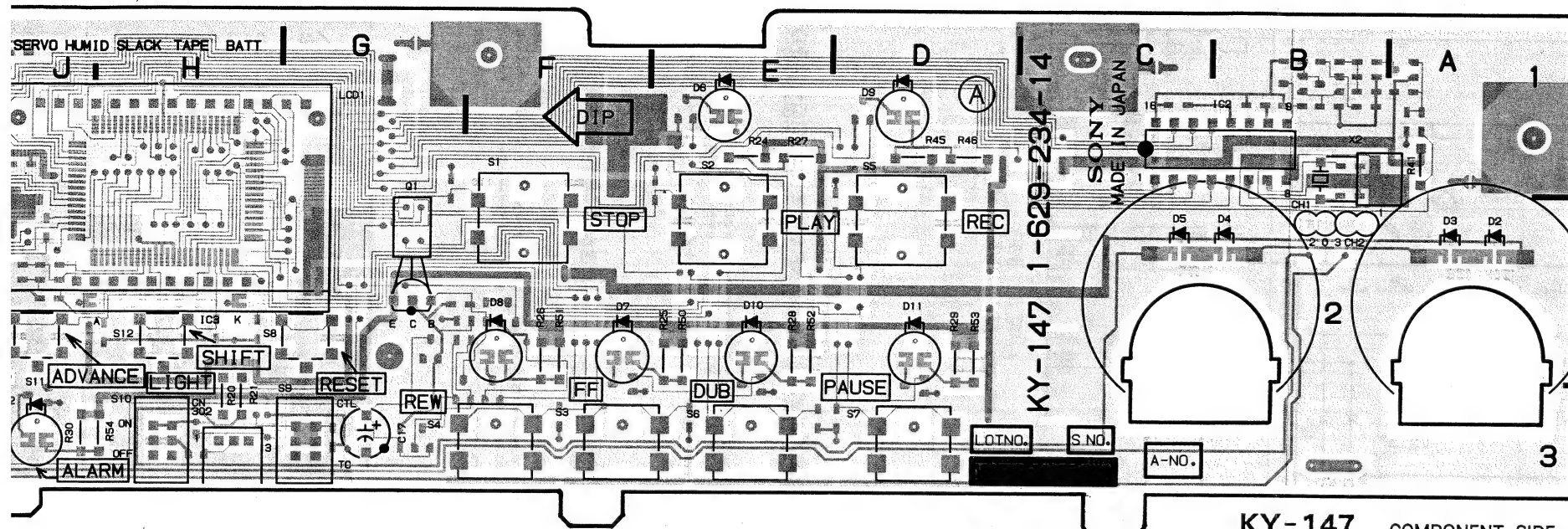
KY-147 (1-629-234-11, 12, 13, 14)

CN301	K-2 C
CN302	H-3 C
D2	A-2 C
D3	A-2 C
D4	B-2 C
D5	C-2 C
D6	E-1 C
D7	F-2 C
D8	F-2 C
D9	D-1 C
D10	E-2 C
D11	D-2 C
D12	J-3 C
D13	G-2 S
IC1	H-2 S
IC2	B-1 C
IC3	H-2 C
LCD1	G-1 C
Q1	G-1 C
Q2	F-2 S
Q3	E-1 S
Q4	E-3 S
Q5	F-3 S
Q6	D-1 S
Q7	E-3 S
Q8	D-3 S
Q9	J-3 S
Q10	B-1 S
Q11	B-1 S
Q12	A-1 S
Q13	G-3 S
Q14	G-3 S
Q15	H-3 S
S1	F-1 C
S2	E-1 C
S3	F-3 C
S4	G-3 C
S5	D-1 C
S6	E-3 C
S7	D-3 C
S8	H-2 C
S9	G-3 C
S10	H-3 C
S11	J-2 C
S12	H-2 C
TP1	K-2 C
X1	J-1 C
X2	B-1 C

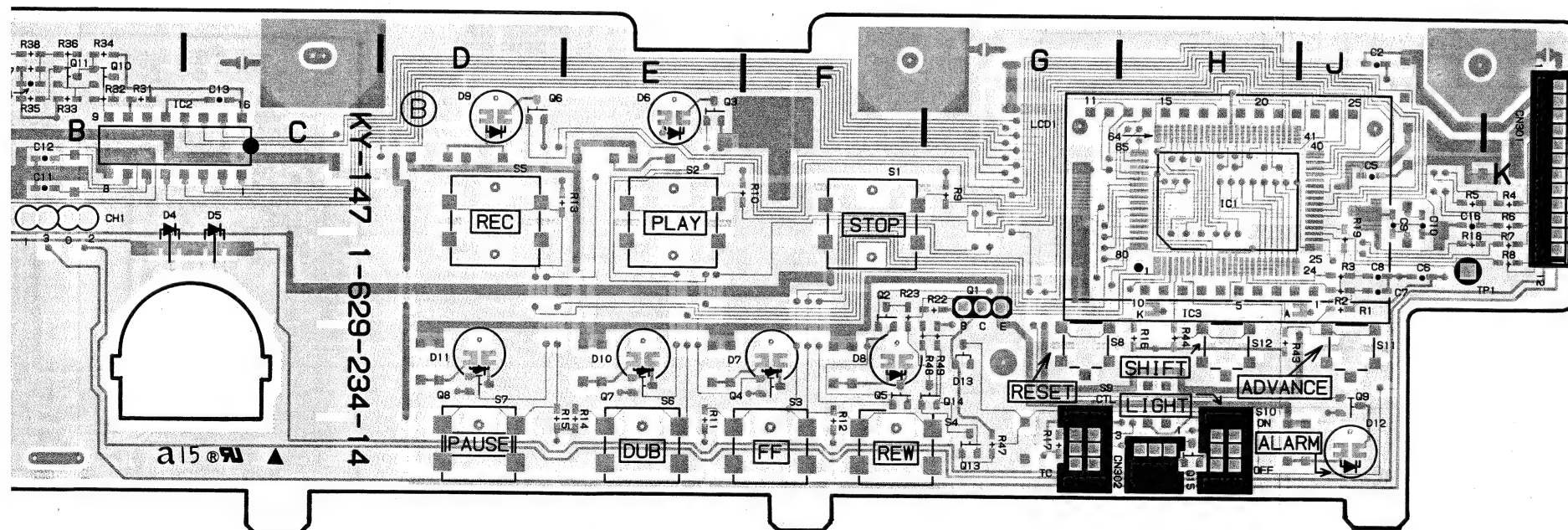
\*\* C; COMPONENT SIDE  
\*\* S; SOLDERING SIDE





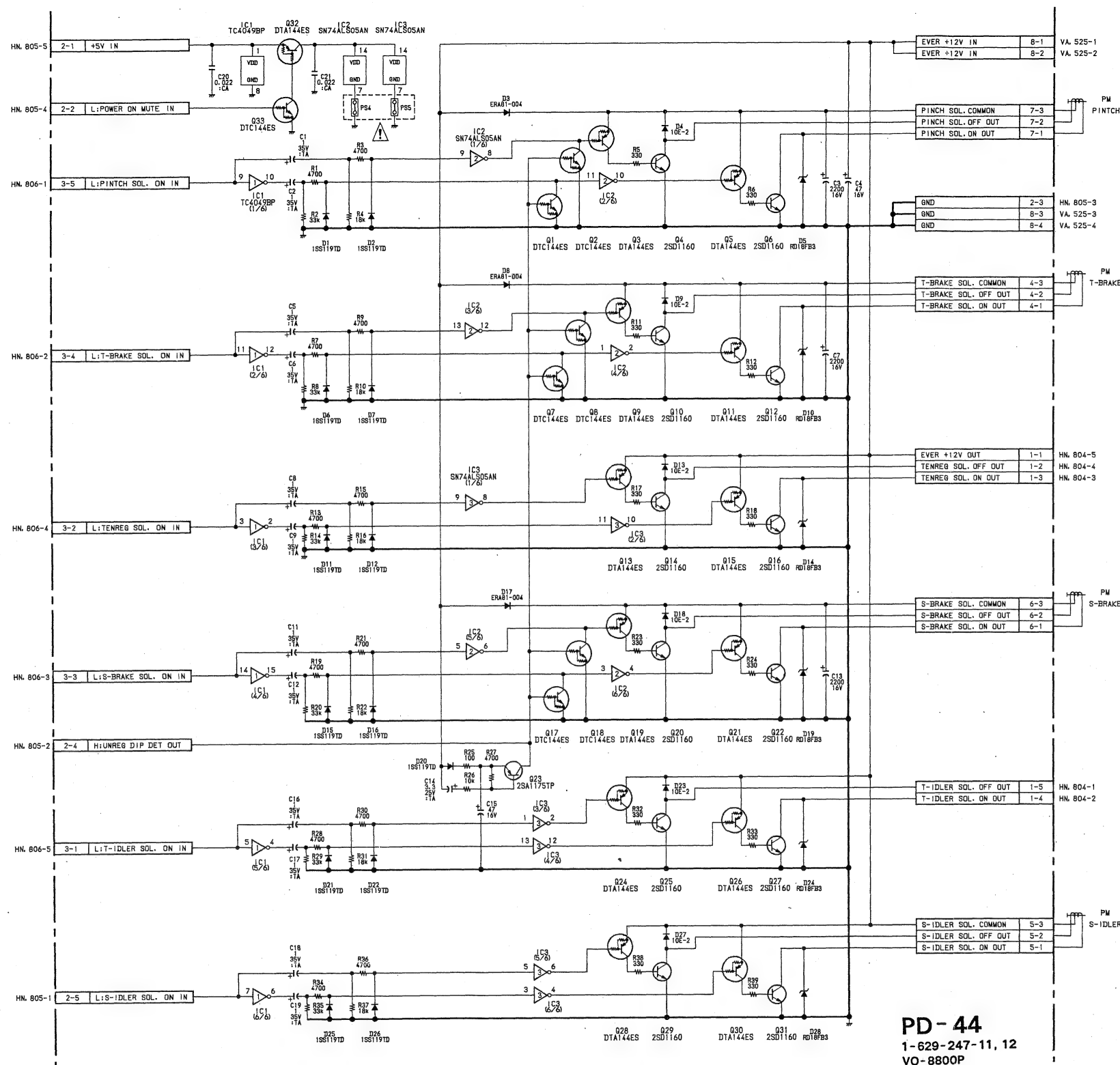


**KY-147** - COMPONENT SIDE -  
1-629-234-11, 12, 13, 14  
VO-8800P



**KY-147** - SOLDERING SIDE -  
1-629-234-11, 12, 13, 14  
VO-8800P

## PD - 44 : SOLENOID DRIVER

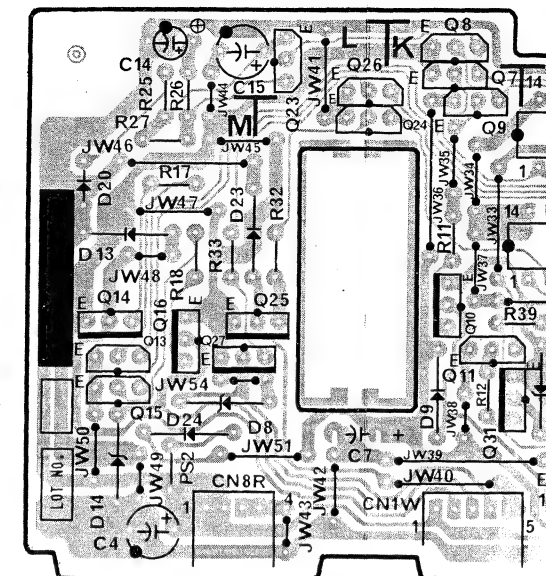


PD-44 (1-629-247-11,12)

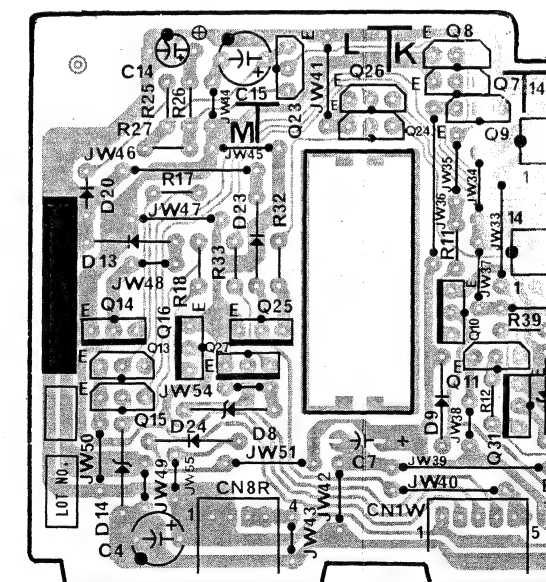
CN1	K-4	C	IC1	E-3	C
CN2	F-4	C	IC2	J-1	C
CN3	E-4	C	IC3	J-2	C
CN4	J-4	C			
CN5	G-4	C	Q1	D-1	C
CN6	C-4	C	Q2	C-1	C
CN7	B-4	C	Q3	C-1	C
CN8	M-4	C	Q4	C-2	C
			Q5	B-1	C
			Q6	A-2	C
D1	F-1	C	Q7	K-1	C
D2	C-1	C	Q8	K-1	C
D3	B-2	C	Q9	K-1	C
D4	B-2	C	Q10	K-3	C
D5	A-2	C	Q11	K-3	C
D6	G-2	C	Q12	J-4	C
D7	F-1	C	Q13	M-3	C
D8	L-4	C	Q14	M-3	C
D9	K-3	C	Q15	M-3	C
D10	J-4	C	Q16	M-3	C
D11	G-3	C	Q17	C-1	C
D12	H-3	C	Q18	A-4	C
D13	M-2	C	Q19	A-4	C
D14	M-4	C	Q20	B-2	C
D15	F-2	C	Q21	A-3	C
D16	H-2	C	Q22	A-2	C
D17	A-2	C	Q23	L-1	C
D18	A-3	C	Q24	K-1	C
D19	B-3	C	Q25	L-3	C
D20	M-2	C	Q26	L-1	C
D21	H-2	C	Q27	M-3	C
D22	G-4	C	Q28	H-3	C
D23	M-2	C	Q29	J-3	C
D24	M-4	C	Q30	J-3	C
D25	F-4	C	Q31	K-4	C
D26	F-4	C	Q32	E-4	C
D27	H-4	C	Q33	F-4	C
D28	J-3	C			

\*\* C: COMPONENT SIDE  
\*\* S: SOLDERING SIDE

S/N 10001 through 10300



S/N 10301 and higher



## NOTE:

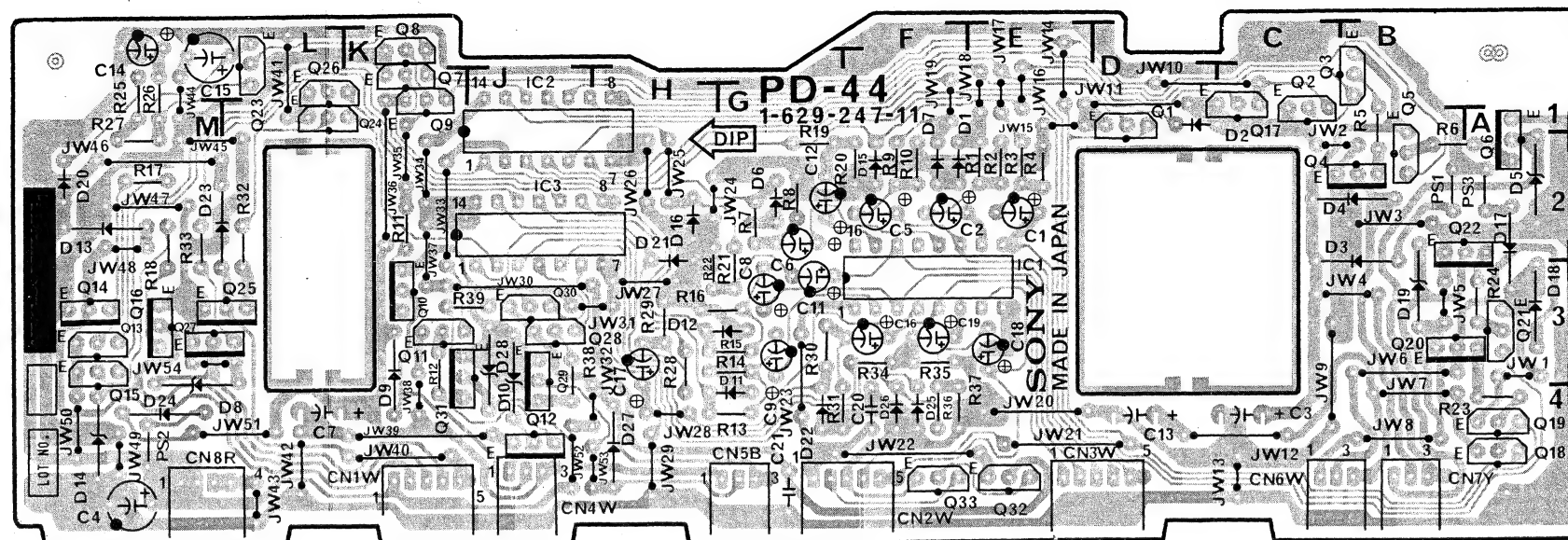
The  $\Delta$ -marked components are critical to safety.  
Replace only with same components as specified.

PD-44 (1-629-247-11,12)

CN1	K-4	C	IC1	B-3	C
CN2	F-4	C	IC2	J-1	C
CN3	E-4	C	IC3	J-2	C
CN4	J-4	C			
CN5	G-4	C	Q1	D-1	C
CN6	C-4	C	Q2	C-1	C
CN7	B-4	C	Q3	C-1	C
CN8	M-4	C	Q4	C-2	C
			Q5	B-1	C
D1	F-1	C	Q6	A-2	C
D2	C-1	C	Q7	K-1	C
D3	B-2	C	Q8	K-1	C
D4	B-2	C	Q9	K-1	C
D5	A-2	C	Q10	K-3	C
D6	G-2	C	Q11	K-3	C
D7	F-1	C	Q12	J-4	C
D8	L-4	C	Q13	M-3	C
D9	K-3	C	Q14	M-3	C
D10	J-4	C	Q15	M-3	C
D11	G-3	C	Q16	M-3	C
D12	H-3	C	Q17	C-1	C
D13	M-2	C	Q18	A-4	C
D14	M-4	C	Q19	A-4	C
D15	F-2	C	Q20	B-2	C
D16	H-2	C	Q21	A-3	C
D17	A-2	C	Q22	A-2	C
D18	A-3	C	Q23	L-1	C
D19	B-3	C	Q24	K-1	C
D20	M-2	C	Q25	L-3	C
D21	H-2	C	Q26	L-1	C
D22	G-4	C	Q27	M-3	C
D23	M-2	C	Q28	H-3	C
D24	M-4	C	Q29	J-3	C
D25	F-4	C	Q30	J-3	C
D26	F-4	C	Q31	K-4	C
D27	H-4	C	Q32	B-4	C
D28	J-3	C	Q33	F-4	C

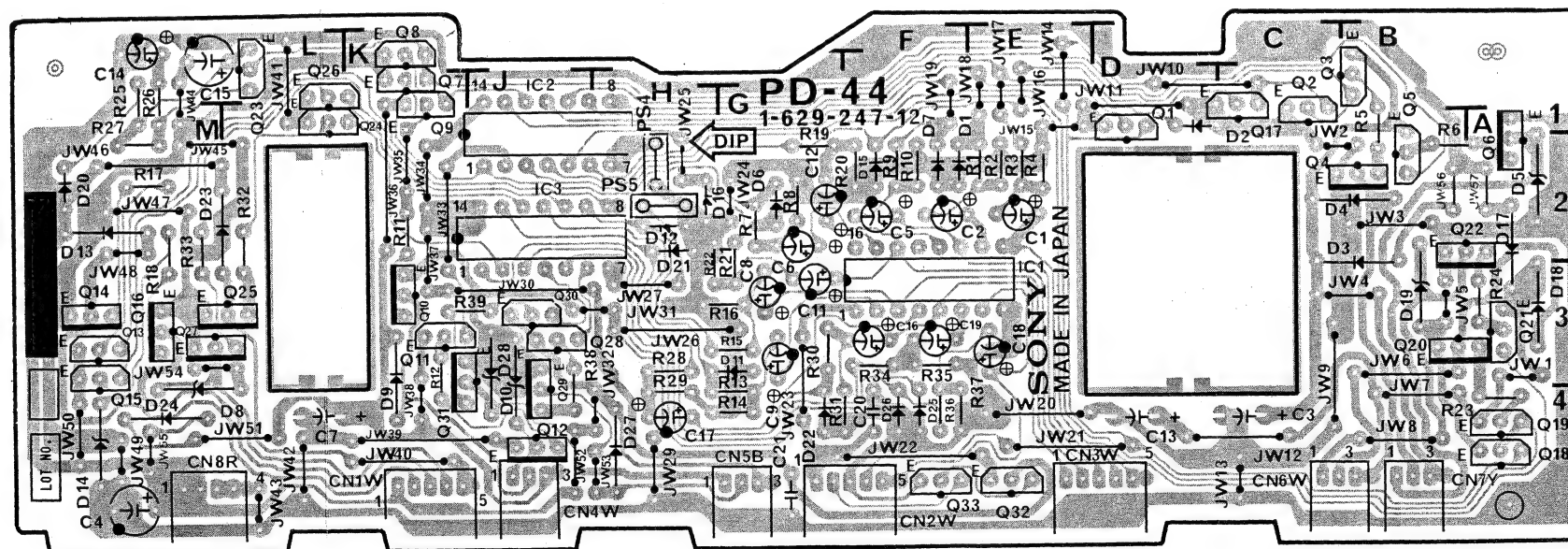
\*\* C: COMPONENT SIDE  
\*\* S: SOLDERING SIDE

S/N 10001 through 10300



PD-44 —COMPONENT SIDE—  
1-629-247-11  
VO - 8800P

S/N 10301 and higher



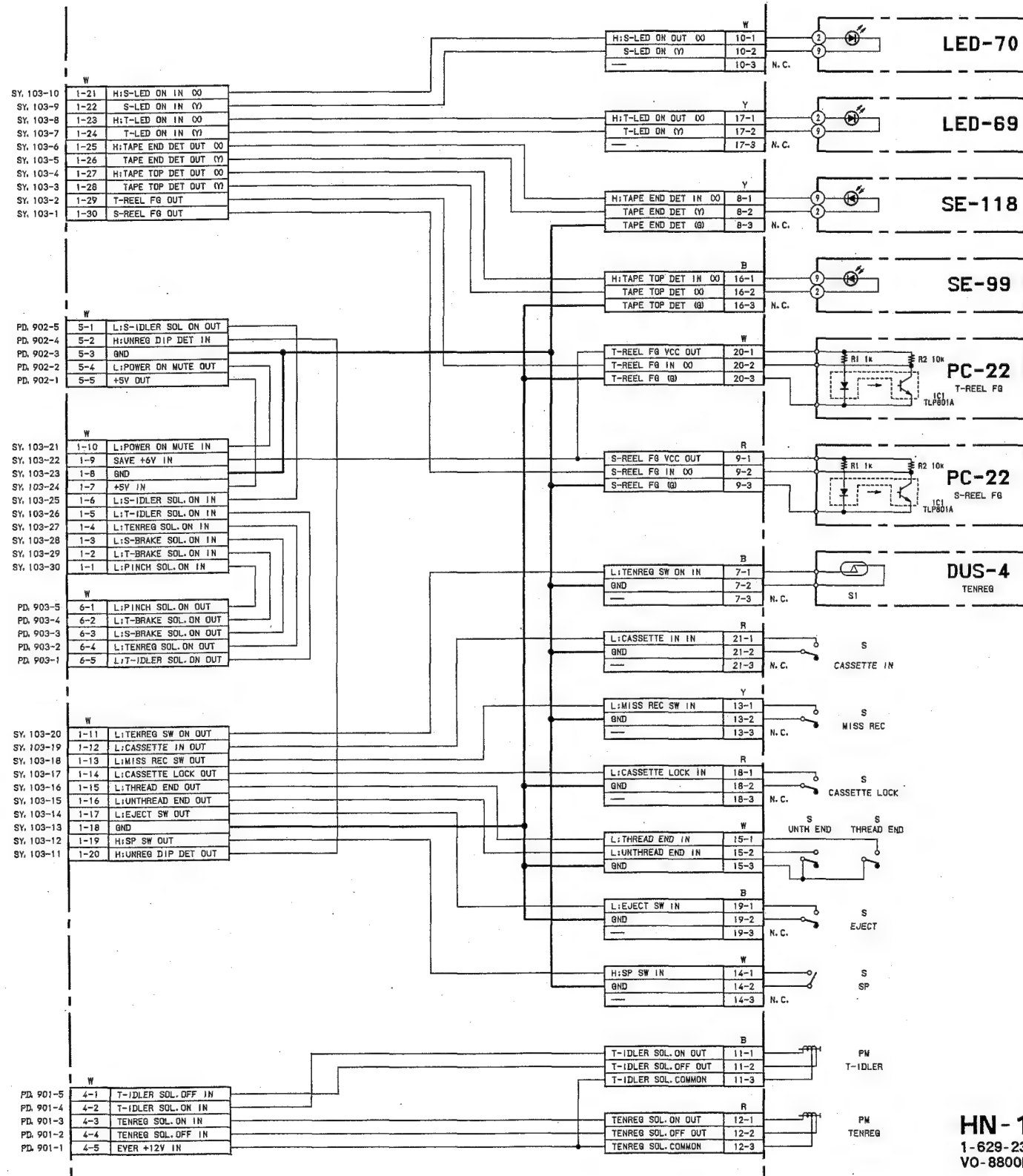
PD-44 —COMPONENT SIDE—  
1-629-247-12  
VO - 8800P

NOTE:

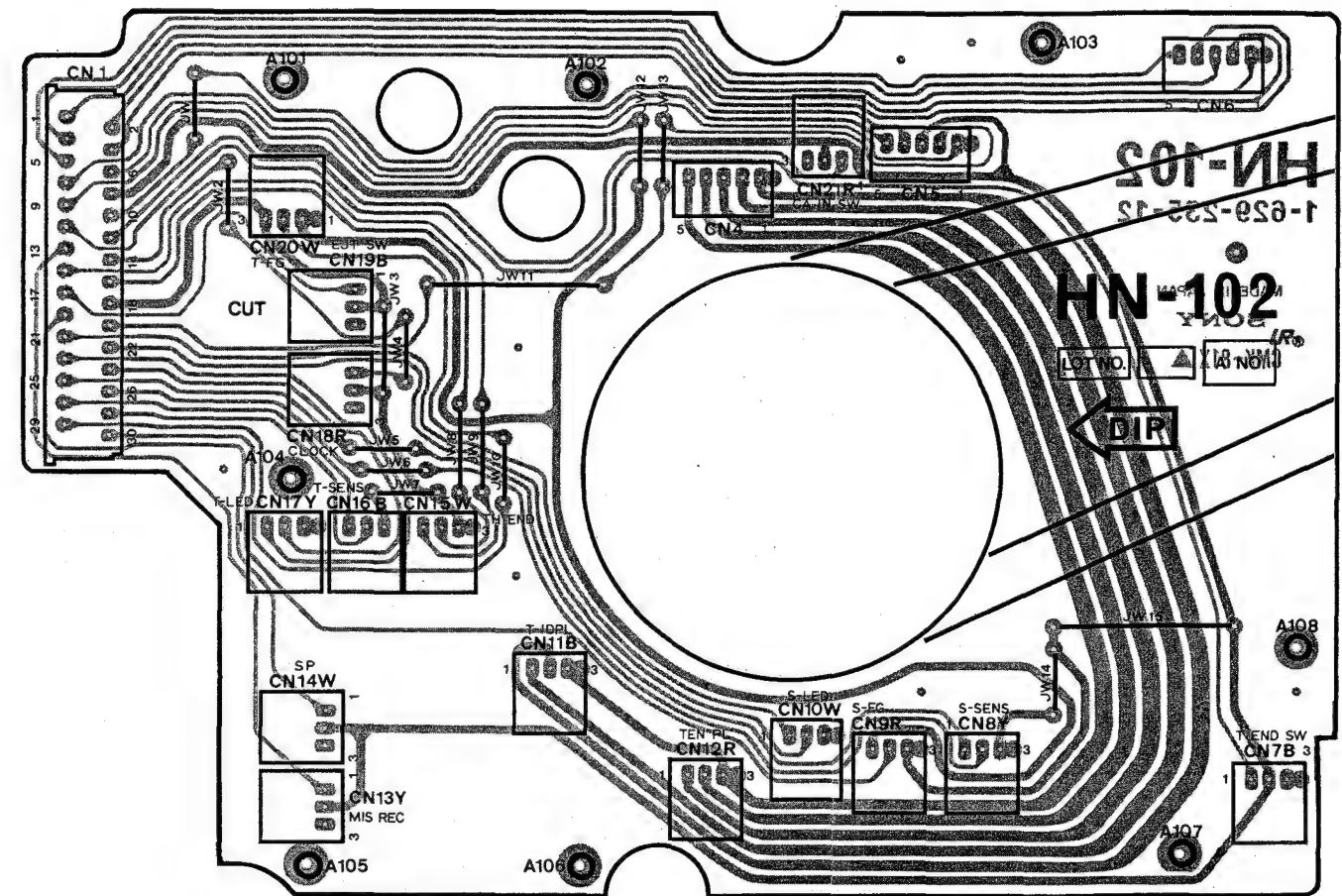
The  $\Delta$ -marked components are critical to safety.  
Replace only with same components as specified.



HN - 102 : CONNECTION



HN - 102  
1-629-235-11,12  
VO-8800P



HN-102 - COMPONENT SIDE -  
1-629-235-11, 12  
VO-8800P

BP - 15 : CONNECTION

BP - 16 : BATTERY CASE

CM - 23 : CAMERA CONTROL, CAMERA IN/OUT, CAMERA MIC INPUT SELECT

CN - 271 : CONNECTION

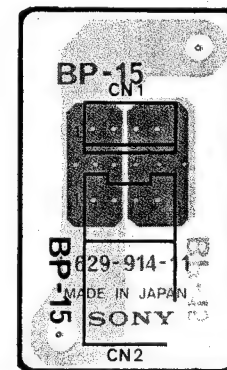
DU - 58 : AUDIO R/P HEAD, ERASE HEAD, CTL R/P HEAD

DUS - 262 : CONNECTION

HP - 45 : PHONE LEVEL

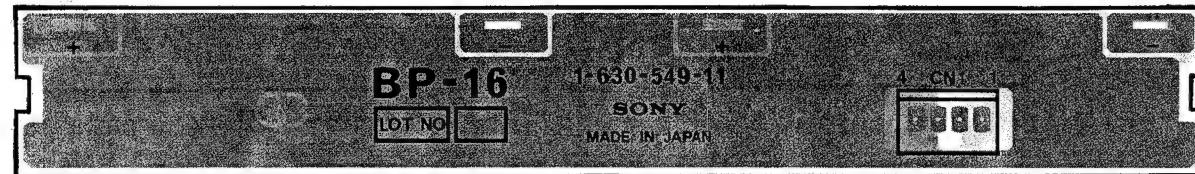
TR - 54 : SAVE +10V

S/N 10001 through 10300

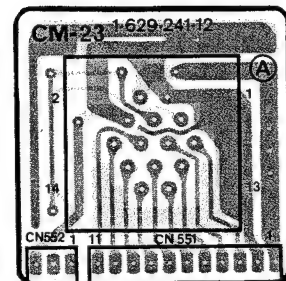


**BP-15** —COMPONENT SIDE—  
1-629-914-11  
VO - 8800P

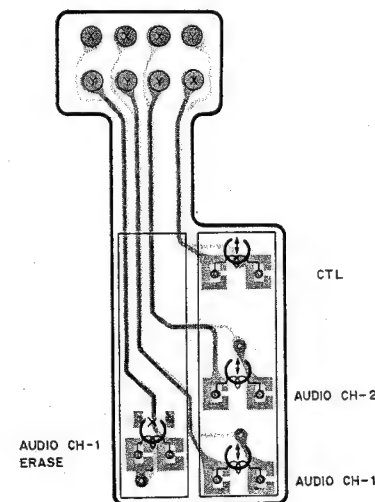
S/N 10301 and higher



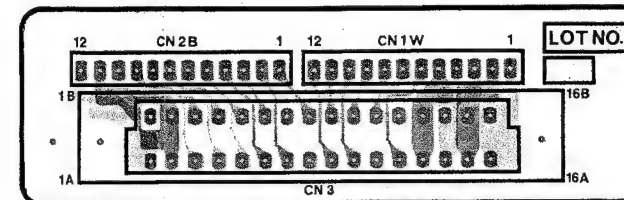
**BP-16** —COMPONENT SIDE—  
1-630-549-11  
VO - 8800P



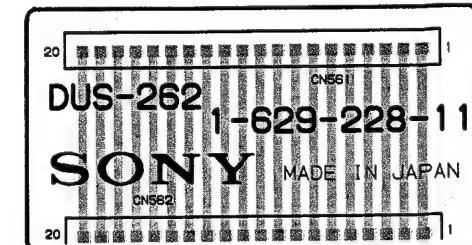
**CM-23** —COMPONENT SIDE—  
1-629-241-11, 12  
VO-8800P



**DU-58** —SOLDERING SIDE—  
1-611-954-11  
VO - 8800P



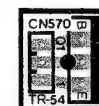
**CN-271** —COMPONENT SIDE—  
1-629-248-11  
VO - 8800P



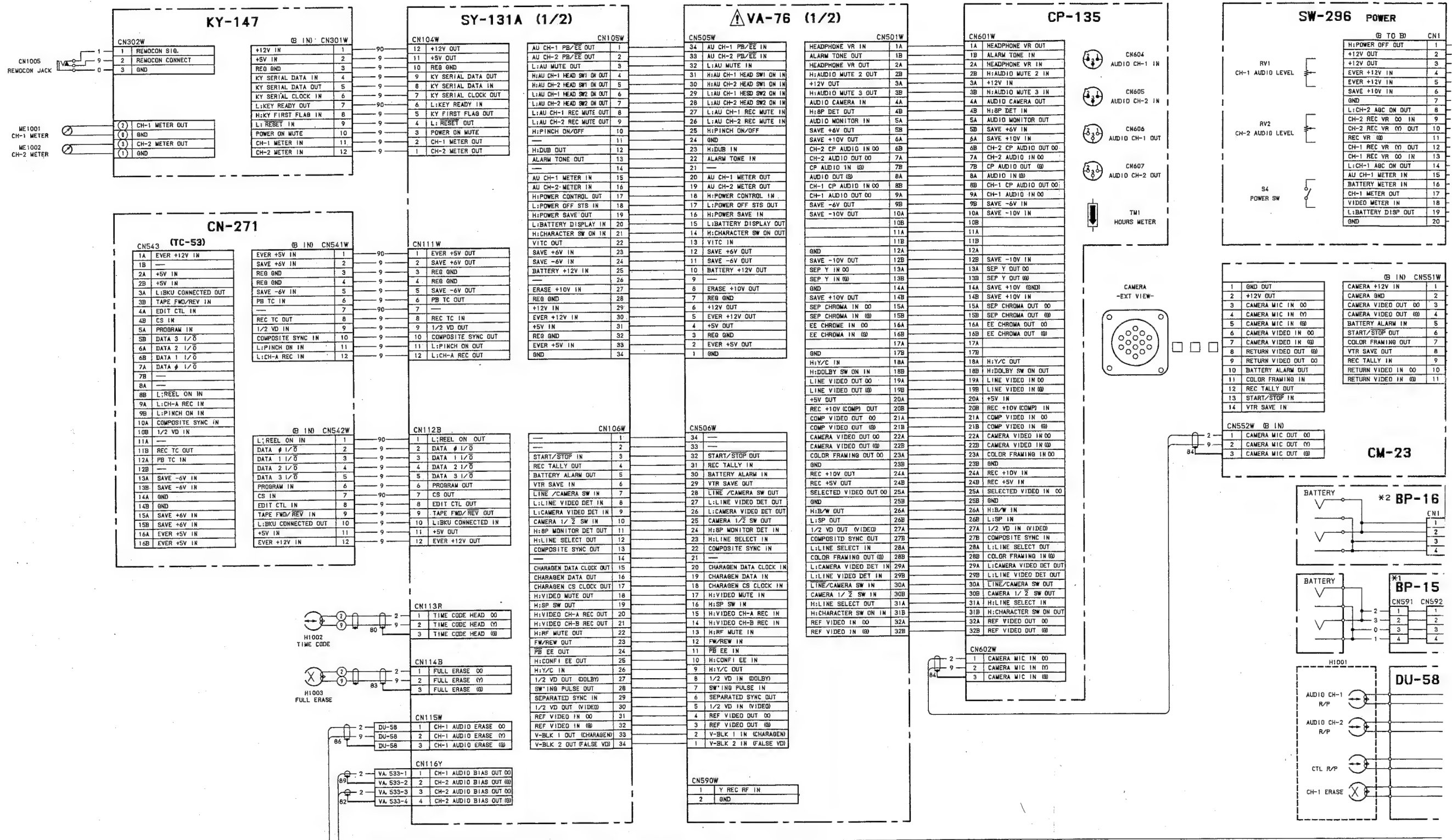
**DUS-262** —COMPONENT SIDE—  
1-629-228-11  
VO - 8800P

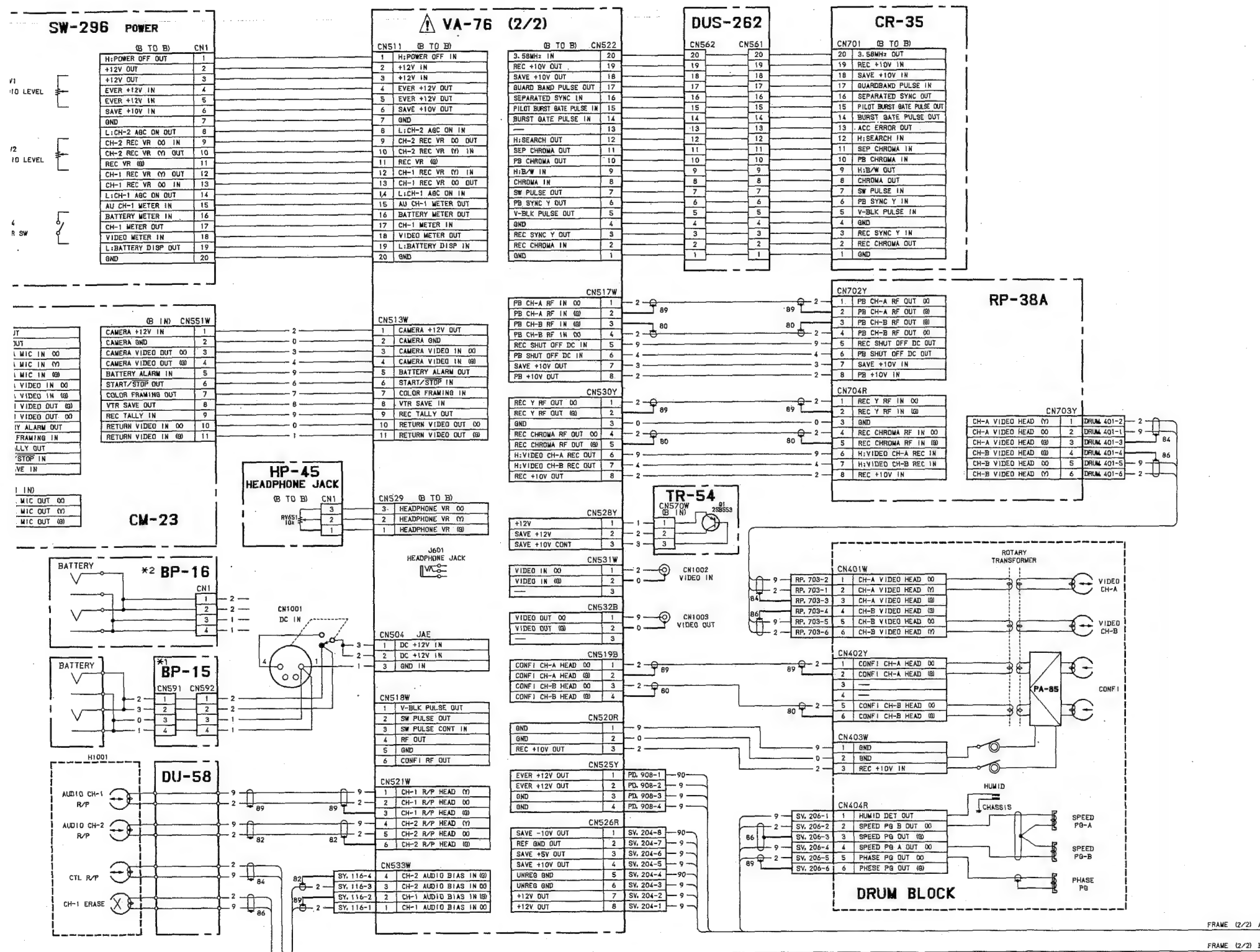


**HP-45** —COMPONENT SIDE—  
1-629-242-11, 12  
VO-8800P



**TR-54** —COMPONENT SIDE—  
1-629-250-11  
VO - 8800P

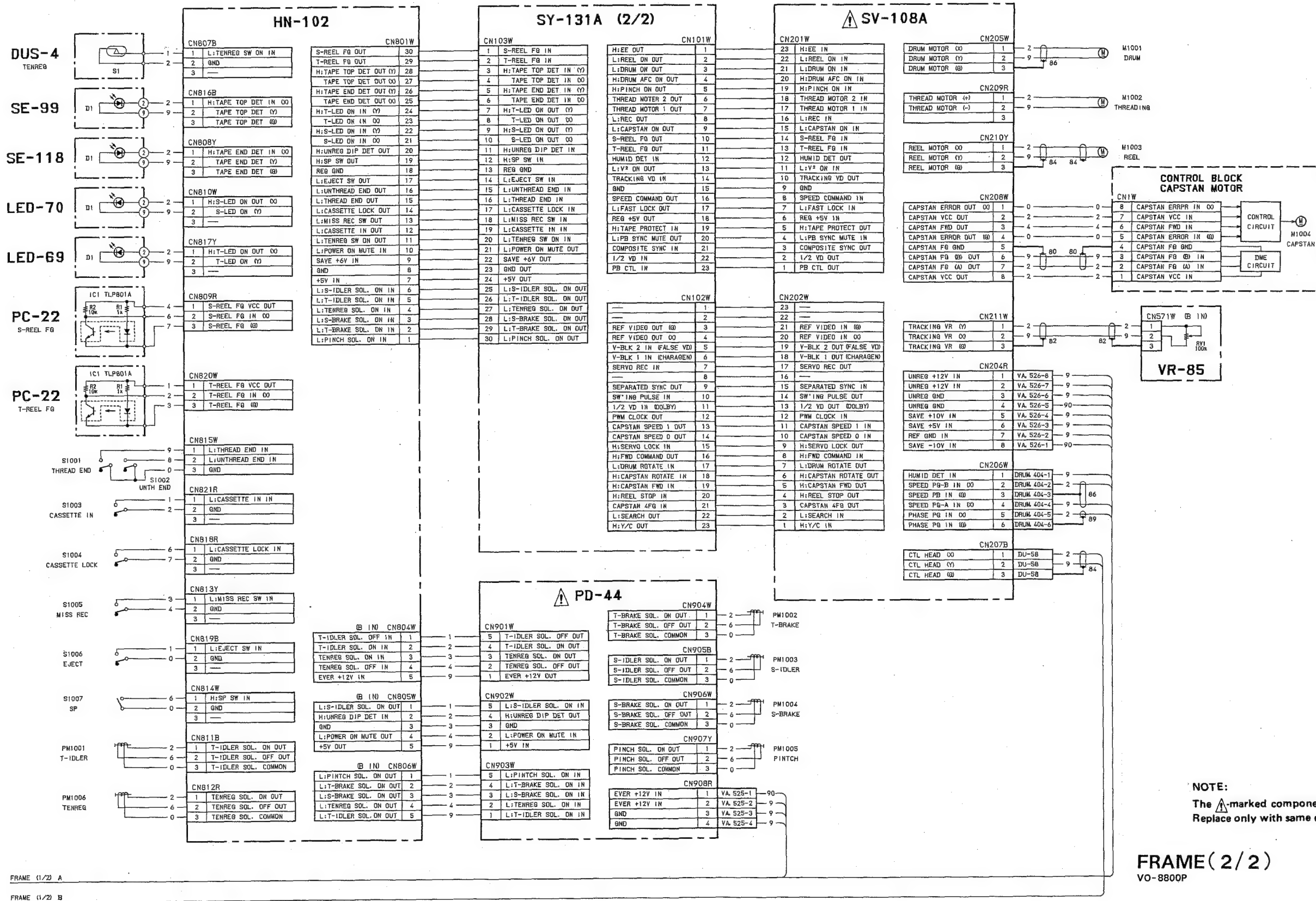




NOTE: \*1 marked board is for Serial No. up to 10300.  
\*2 marked board is for Serial No. 10301 and higher.

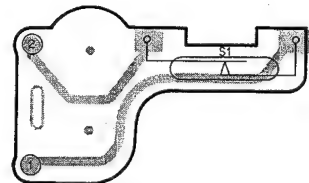
NOTE:  
The  $\Delta$ -marked components are critical to safety.  
Replace only with same components as specified.



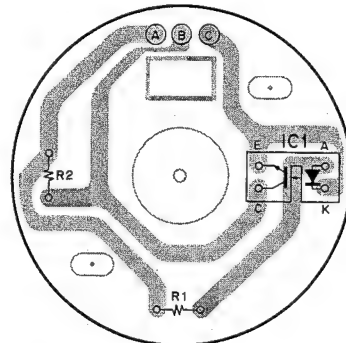




DUS - 4 : TENSION REGULATOR SWITCH  
LED - 69 : TAPE TOP LED  
LED - 70 : TAPE END LED  
PC - 22 : TAKE - UP / SUPPLY REEL FG  
SE - 99 : TAPE TOP DETECTOR  
SE - 118 : TAPE END DETECTOR  
VR - 85 : TRACKING VR



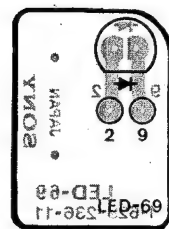
DUS-4 —SOLDERING SIDE—  
1-611-963-11  
VO - 8800P



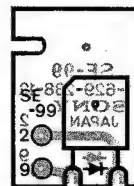
PC-22 —SOLDERING SIDE—  
1-611-960-12  
VO - 8800P



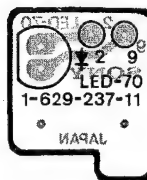
VR-85 —COMPONENT SIDE—  
1-629-248-11  
VO - 8800P



LED-69 —COMPONENT SIDE—  
1-629-236-11  
VO - 8800P



SE-99 —COMPONENT SIDE—  
1-629-238-11, 12  
VO - 8800P



LED-70 —COMPONENT SIDE—  
1-629-237-11  
VO - 8800P



SE-118 —COMPONENT SIDE—  
1-629-239-11  
VO - 8800P

## SECTION 16

### SPARE PARTS AND FIXTURE

#### 16-1. PARTS INFORMATION

- (1) The  $\Delta$  -marked components are critical to safety.

Replace only with same components as specified.

- (2) Replacement Parts supplied from the Sony Parts Center will sometimes have a different shape from the original parts. This is due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts."

This manual's exploded views and electrical spare parts list indicate the part numbers of "the standardized genuine parts at the present".

Regarding engineering part changes in out engineering department, refer to Sony service bulletins and service manual supplements.

- (3) The parts marked with "s" in the SP column of the exploded views and electrical spare parts list are normally stocked for replacement purposes. The parts marked with "o" in the SP column are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.
- (4) Item with no part number and/or no description are not stocked because they are seldom required for routine service.

- (5) ( T ) after a spring description is shown on the exploded views in order to indicate the number of a spring turn required for the use.

(Example)

Spring, tension (24T); This spring must be cut at its 24th turn for actual use.

- (6) All capacitors are in micro farads unless otherwise specified.


All inductors are in micro henries unless otherwise specified.

All resistors are in ohms.

#### 16-2. EXPLODED VIEW

.Exploded views are composed of the following blocks.

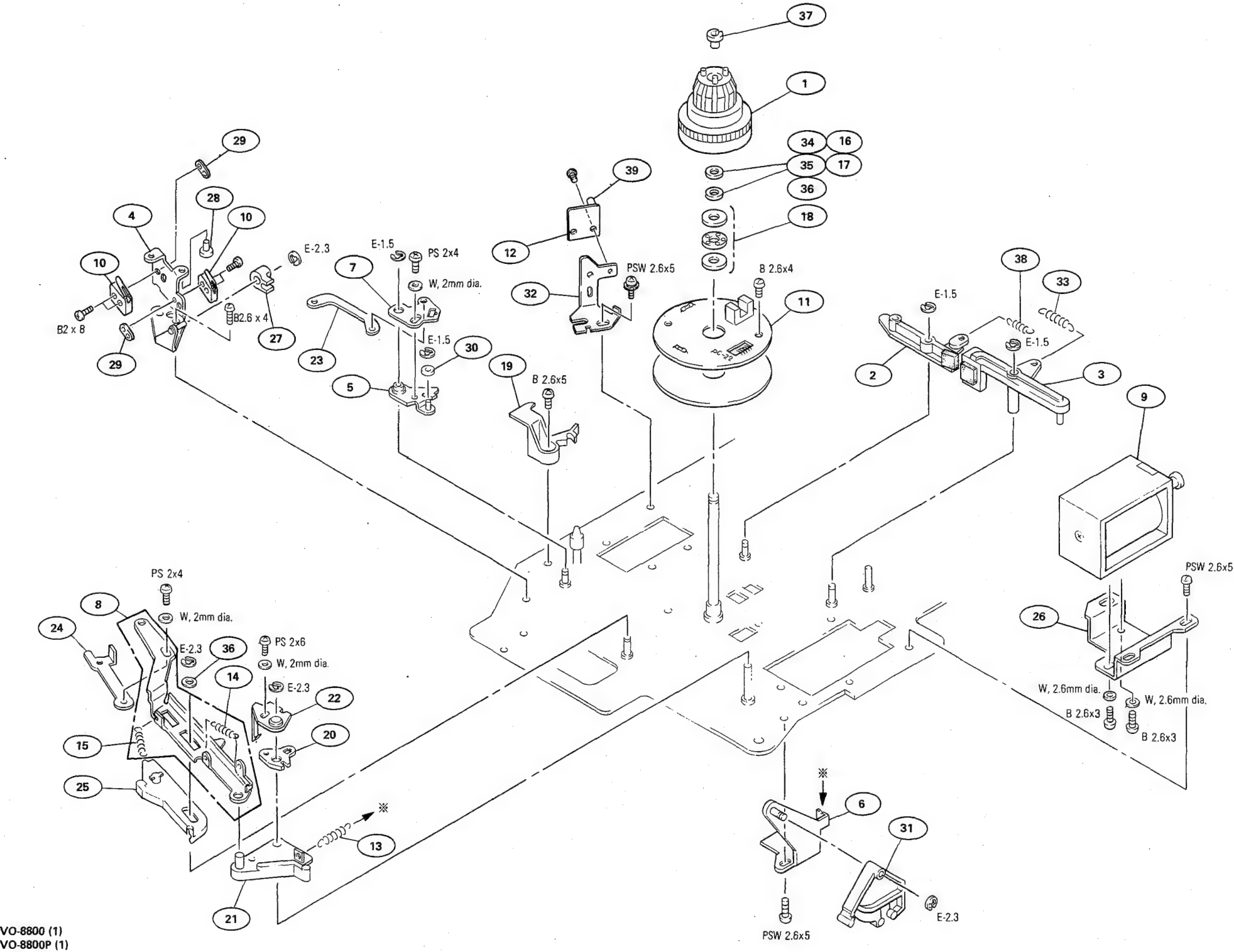
- (1) Reel Chassis Block (1) (take-up side)  
take-up reel table  
take-up side brake shoe  
mis-recording switch  
brake solenoid  
eject lever
- (2) Reel Chassis Block (2)(supply side)  
supply reel table  
supply side brake shoe  
tension regulator  
cassette in switch  
brake solenoid  
tension solenoid
- (3) Reel Chassis Block (3)(driving block)  
idler tire  
idler solenoid
- (4) Reel Chassis Block (4)(back side)  
drum motor  
reel motor  
drive belt  
cassette-lock back  
printed circuit board
- (5) T.U Arm and Ring Stopper Blocks  
T.U arm  
tape end detector  
ring stopper
- (6) Threading Motor Block  
threading motor
- (7) Pinch Pressure Block  
pinch solenoid  
pinch pressure mechanism
- (8) Threading Ring Block  
threading ring

- 
- (9) Head Drum, Stationary Head and Tape  
Guide Blocks  
head drum  
rotary upper drum  
capstan motor  
full erase head  
audio/CTL head  
tape guides  
tape beginning sensor
- (10) Cassette-up Compartment Block  
cassette-up compartment
- (11) Connector Panel Block  
connector panel  
TC unit case
- (12) Printed Circuit Board and Frame  
Blocks  
printed circuit board  
frame chassis
- (13) Front Panel and Function Key Blocks  
front panel  
level meter  
function key board
- (14) Ornamental Panel Block  
upper case  
lower case  
cassette-up compartment lid

REEL CHASSIS BLOCK (1) REEL CHASSIS BLOCK (1)

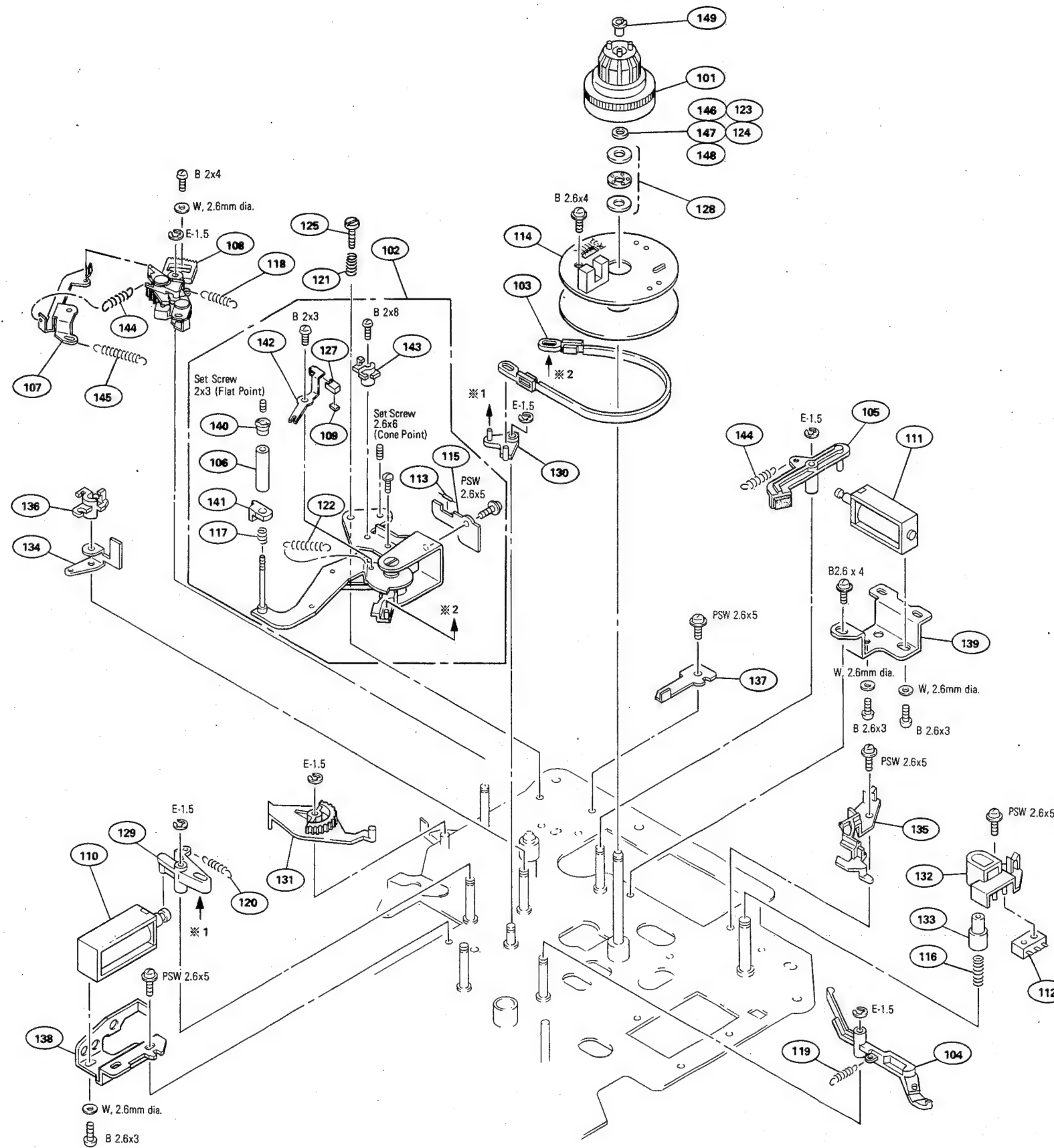
Reel Chassis Block (1) (Take - Up Side)

No.	Part No.	SP	Description
1	A-6739-034-A	s	TABLE ASSY, REEL
2	X-3685-818-2	s	ARM ASSY, T SOFT BRAKE
3	X-3685-819-2	s	ARM ASSY, BRAKE
4	X-3685-829-1	o	BASE ASSY, MISS RECORDING
5	X-3685-830-1	o	RING ASSY, SLIDE STOPPER
6	X-3685-831-1	o	HOLDER ASSY, VH RING
7	X-3685-833-1	o	PLATE ASSY, ADJUSTMENT, LINK
8	X-3685-838-1	o	SLIDER ASSY, E
9	1-454-383-11	s	SOLENOID, PLUNGER
10	1-570-028-11	s	SWITCH, MICRO
11	1-611-960-11	o	PRINTED CIRCUIT BOARD, PC-22
12	1-629-237-11	o	PRINTED CIRCUIT BOARD, LED-70
13	3-465-158-XX	s	SPRING, TENSION (16T)
14	3-567-029-00	s	SPRING, TENSION
15	3-573-930-00	s	SPRING, TENSION
16	3-621-910-01	s	WASHER, 0.05T
17	3-621-910-11	s	WASHER, 0.1T
18	3-676-322-00	s	BEARING, THRUST
19	3-685-802-01	o	GUIDE, PINCH ROLLER
20	3-685-809-01	o	PLATE, ADJUSTMENT, E. SWITCH
21	3-685-810-01	o	LINK, REPLACEMENT, H
22	3-685-811-01	s	ACTUATOR, E SWITCH
23	3-685-812-01	o	JOINT, KM
24	3-685-813-01	o	JOINT, SLIDER, E
25	3-685-814-01	s	PRESSURE, E
26	3-685-832-01	o	BASE, B-SOL
27	3-685-850-01	o	LEVER, RELEASE, C LOCK
28	3-685-851-01	o	SHAFT, MS
29	3-685-852-01	o	NUT (M2), PLATE
30	3-685-860-01	s	ROLLER, E STOPPER
31	3-685-864-01	o	LINK, VH CHANGE
32	3-685-867-01	o	PLATE, S-LED
33	3-686-070-01	s	SPRING, TENSION
34	3-701-439-01	s	WASHER, POLY 3MM DIA., 0.13T
35	3-701-439-11	s	WASHER, POLY 3MM DIA., 0.25T
36	3-701-439-21	s	WASHER, POLY 3MM DIA., 0.5T
37	3-703-074-00	s	CAP 3, SHAFT
38	4-847-057-00	s	SPRING, TENSION
39	8-719-912-39	s	DIODE, SLR-932A



VO-8800 (1)  
VO-8800P (1)

### Reel Chassis Block (2) (Supply Side)

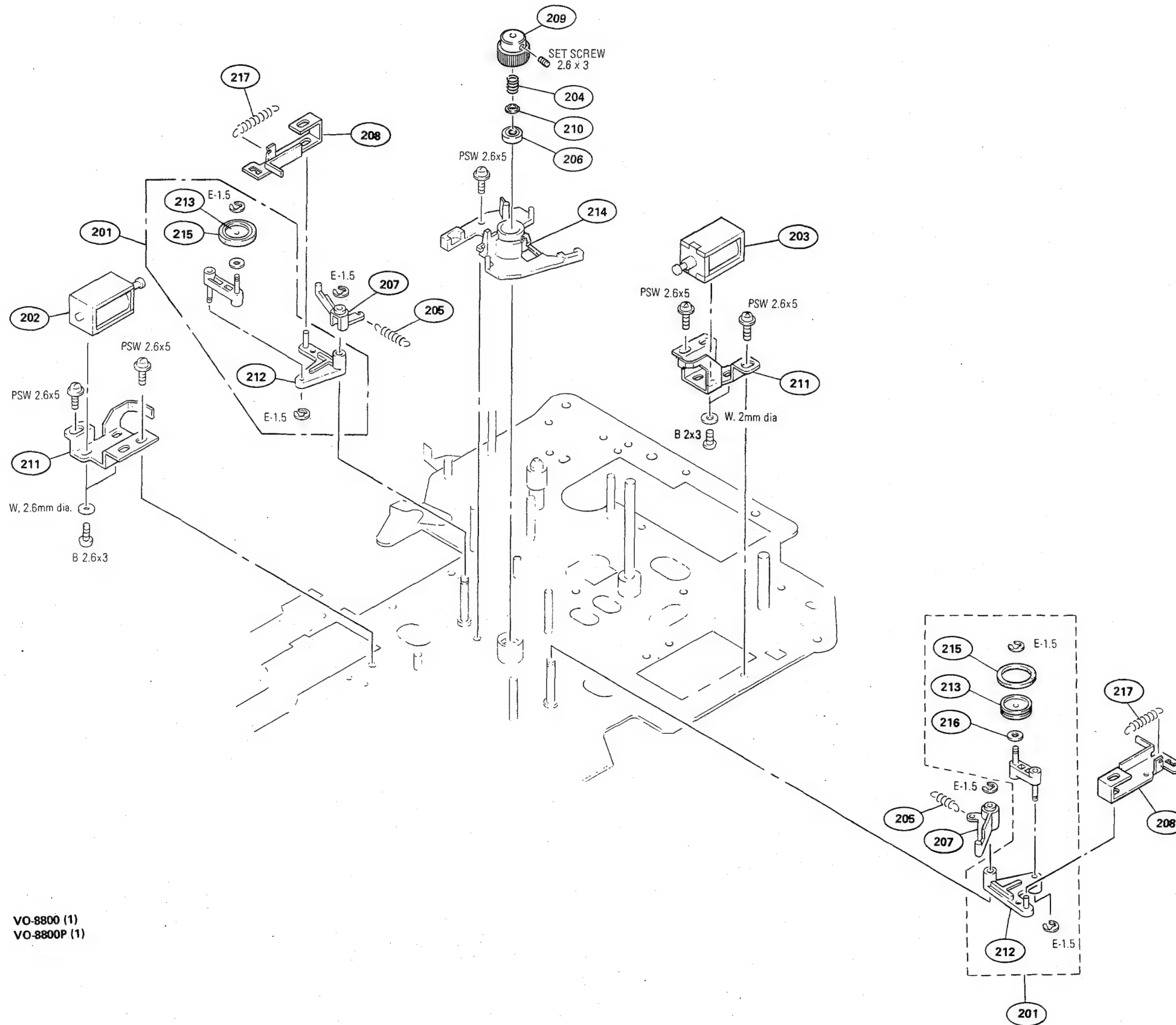


VO-8800 (1)  
VO-8800P (1)

No.	Part No.	SP	Description
101	A-6739-034-A	s	TABLE ASSY, REEL
102	A-6742-068-A	s	TENSION REGULATOR ASSY
103	X-3685-814-4	s	BAND ASSY, TENSION REGULATOR
104	X-3685-817-2	s	ARM ASSY, S SOFT BRAKE
105	X-3685-819-2	s	ARM ASSY, BRAKE
106	X-3685-820-1	s	ROLLER ASSY, T.R
107	X-3685-865-1	o	ARM (C) ASSY, T.R DRAWER
108	X-3685-866-1	o	ARM SUB ASSY, T.R DRAWER
109	1-452-238-11	o	MAGNET, FIXED
110	1-454-382-11	s	SOLENOID, PLUNGER
111	1-454-383-11	s	SOLENOID, PLUNGER
112	1-570-028-21	s	SWITCH, MICRO
113	1-570-816-11	s	SWITCH, REED
114	1-611-960-11	o	PRINTED CIRCUIT BOARD, PC-22
115	1-611-963-11	o	PRINTED CIRCUIT BOARD, DUS-4
116	2-527-096-00	o	SPRING, COMPRESSION
117	3-305-432-00	s	SPRING, COMPRESSION
118	3-424-031-00	s	SPRING, RECORD SLIDER
119	3-508-108-XX	s	SPRING, TENSION (12T)
120	3-533-373-00	s	SPRING, TENSION
121	3-534-237-00	s	SPRING, COMPRESSION
122	3-555-212-00	s	SPRING, TENSION
123	3-621-910-01	s	WASHER, 0.05T
124	3-621-910-11	s	WASHER, 0.1T
125	3-650-191-11	s	SCREW, LOCK
126	3-672-461-00	s	SPRING, TENSION
127	3-676-063-01	o	HOLDER, MAGNET
128	3-676-322-00	s	BEARING, THRUST
129	3-685-815-02	o	ARM (A), RELEASE, T.R
130	3-685-816-01	o	ARM (B), RELEASE, T.R
131	3-685-817-01	o	ARM (A), DRAWER, T.R
132	3-685-820-01	o	COVER, SWITCH
133	3-685-821-01	o	PIN, SWITCH
134	3-685-826-01	s	ARM, RELEASE, S SOFT
135	3-685-827-01	o	HOLDER, BAND
136	3-685-828-01	o	COVER, SHAFT
137	3-685-829-03	o	STOPPER, TENSION REGULATOR
138	3-685-831-01	o	BASE, T.R.SOL
139	3-685-832-01	o	BASE, B-SOL
140	3-685-839-01	o	NUT, ADJUSTMENT, T.R
141	3-685-840-01	o	FLANGE (LOWER), T.R
142	3-685-842-01	o	ARM, MAGNET
143	3-685-999-01	o	HOLDER, SPRING
144	3-686-070-01	s	SPRING, TENSION
145	3-686-071-03	s	SPRING, TENSION
146	3-701-439-01	s	WASHER, POLY 3MM DIA., 0.13T
147	3-701-439-11	s	WASHER, POLY 3MM DIA., 0.25T
148	3-701-439-21	s	WASHER, POLY 3MM DIA., 0.5T
149	3-703-074-00	s	CAP 3, SHAFT

REEL CHASSIS BLOCK (3)	REEL CHASSIS BLOCK (3)
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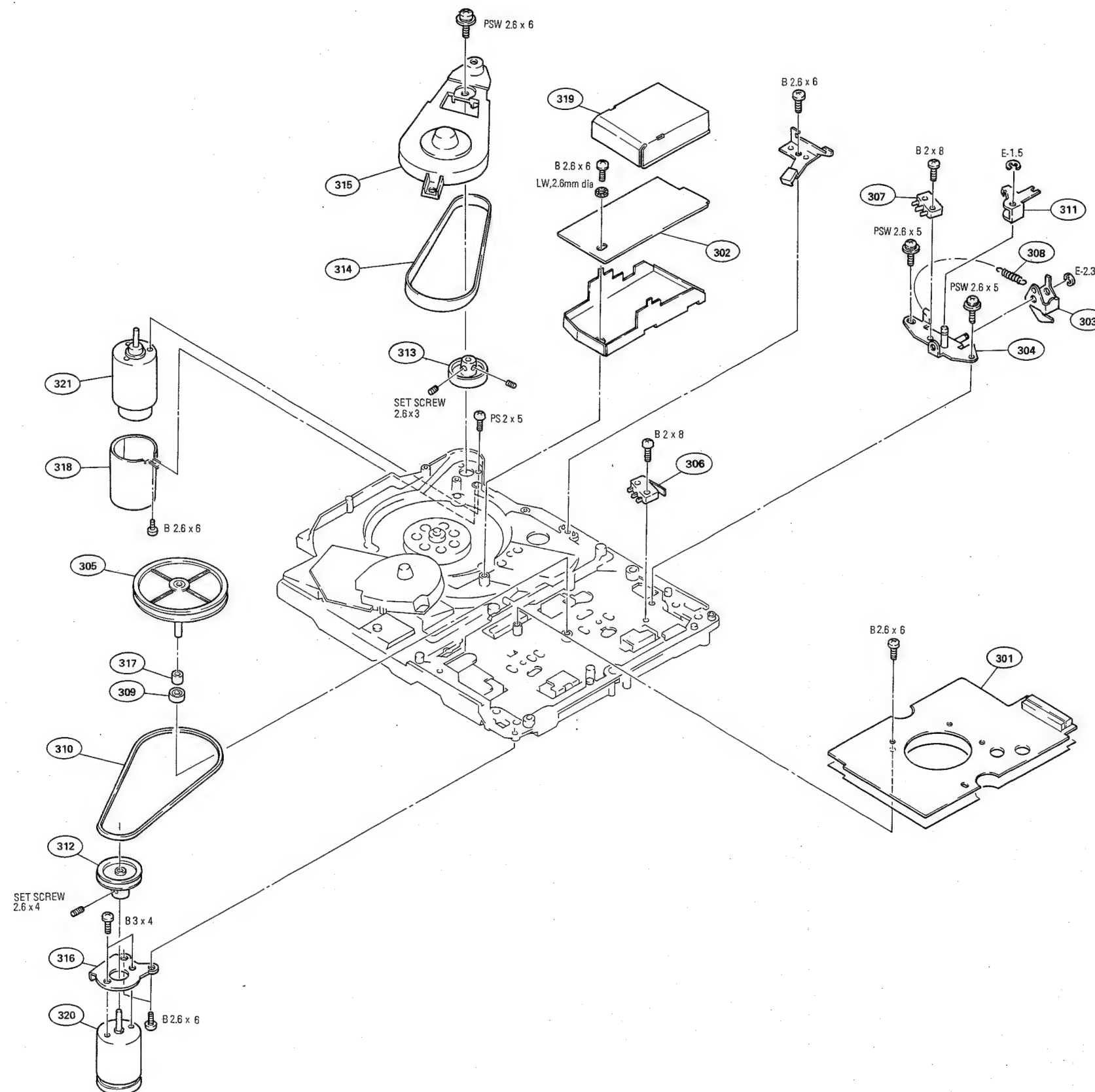
### Reel Chassis Block (3) (Driving Block)



No.	Part No.	SP	Description
201	A-6740-084-A	o	IDLER ASSY
202	1-454-381-11	s	SOLENOID, PLUNGER
203	1-454-381-21	s	SOLENOID, PLUNGER
204	2-245-132-00	s	SPRING, COMPRESSION
205	3-537-783-XX	s	SPRING, TENSION (18T)
206	3-655-691-01	s	BEARING, BALL
207	3-685-822-01	o	ARM, IDLER RELEASE
208	3-685-823-01	o	PLATE, PRESS, IDLER
209	3-685-824-01	o	PULLEY, MIDWAY
210	3-685-825-01	o	RETAINER, SPRING
211	3-685-833-01	o	BASE, I-SOL
212	3-685-835-01	s	ARM (B), IDLER
213	3-685-836-01	o	PULLEY, IDLER
214	3-685-972-01	o	RETAINER, IDLER
215	3-687-902-01	s	TIRE, IDLER
216	3-701-437-21	s	WASHER, POLY 2MM DIA., 0.5T
217	4-812-499-XX	s	SPRING, TENSION (15T)

# REEL CHASSIS BLOCK (4) REEL CHASSIS BLOCK (4)

Reel Chassis Block (4) (Back Side)

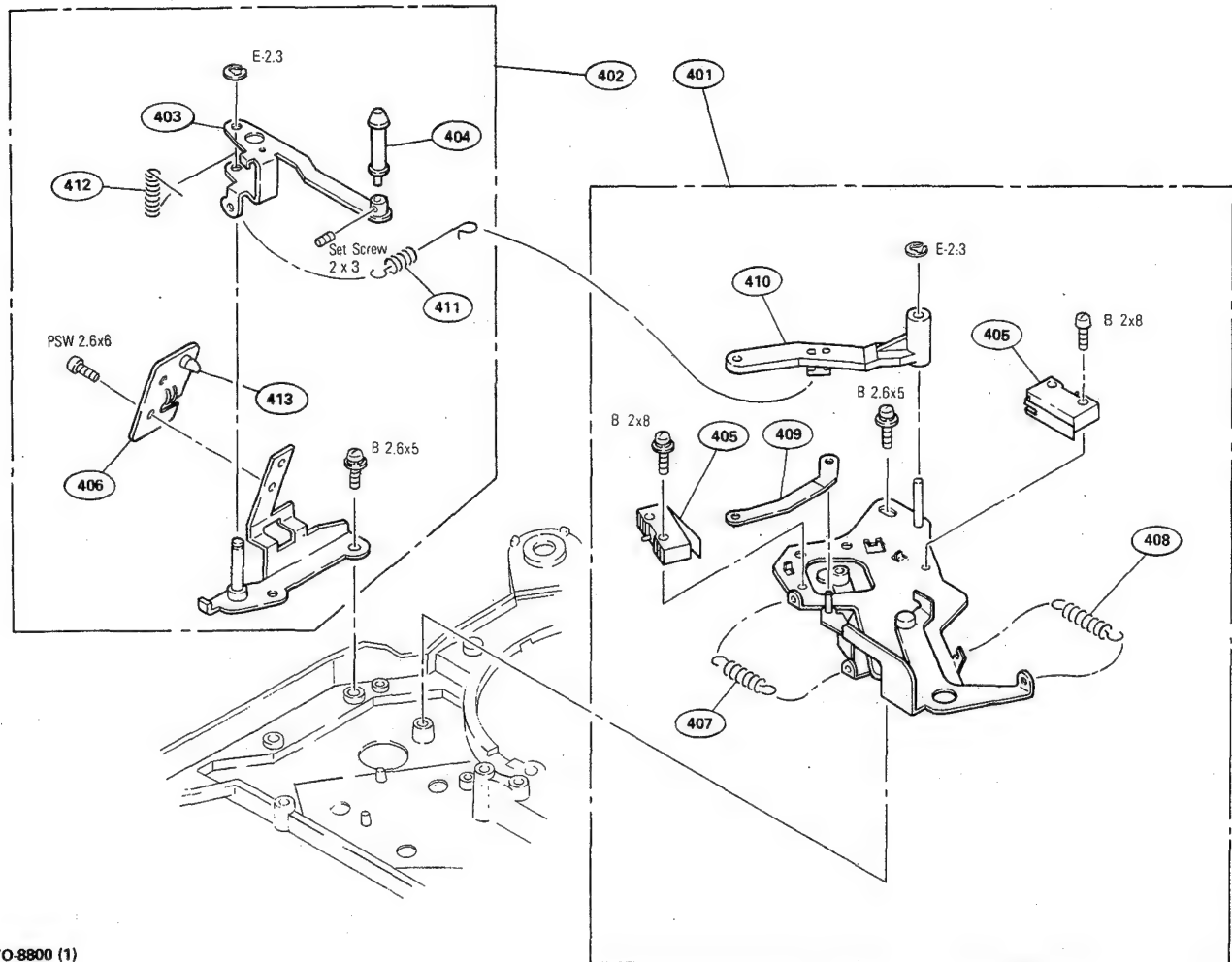


VO-8800 (1)  
VO-8800P (1)

No.	Part No.	SP	Description
301	A-6725-667-A	o	MOUNTED CIRCUIT BOARD, HN-102
302	A-6727-053-A	o	MOUNTED CIRCUIT BOARD, RP-38A (for EK)
	A-6727-058-A	o	MOUNTED CIRCUIT BOARD, RP-38 (for UC)
303	X-3685-827-1	o	ARM ASSY, C LOCK
304	X-3685-828-1	o	BRACKET ASSY, C LOCK ARM
305	X-3731-603-1	s	PULLEY ASSY, MIDWAY
306	1-570-028-11	s	SWITCH, MICRO
307	1-570-028-21	s	SWITCH, MICRO
308	3-571-819-00	s	SPRING, TENSION
309	3-655-691-01	s	BEARING (FLANGE NO), BALL
310	3-685-803-02	s	BELT, REEL
311	3-685-855-01	o	LEVER, SWITCH, LOCK
312	3-685-902-02	o	PULLEY, MOTOR
313	3-686-016-01	s	PULLEY, D MOTOR
314	3-731-683-01	s	BELT, DRUM
315	3-686-095-01	o	COVER, D PULLEY
316	3-731-619-01	o	BRACKET, MOTOR
317	3-731-623-01	o	SPACER, PULLEY
318	3-731-661-01	o	PLATE (B), SHIELD, M
319	3-731-671-01	o	SHIELD PLATE, RP
320	8-835-123-01	s	MOTOR, DC(MNR-7400A)
321	8-835-235-01	s	MOTOR, DC(MNR-2900B)

# T.U ARM AND RING STOPPER BLOCKS

## T.U Arm and Ring Stopper Blocks



VO-8800 (1)  
VO-8800P (1)

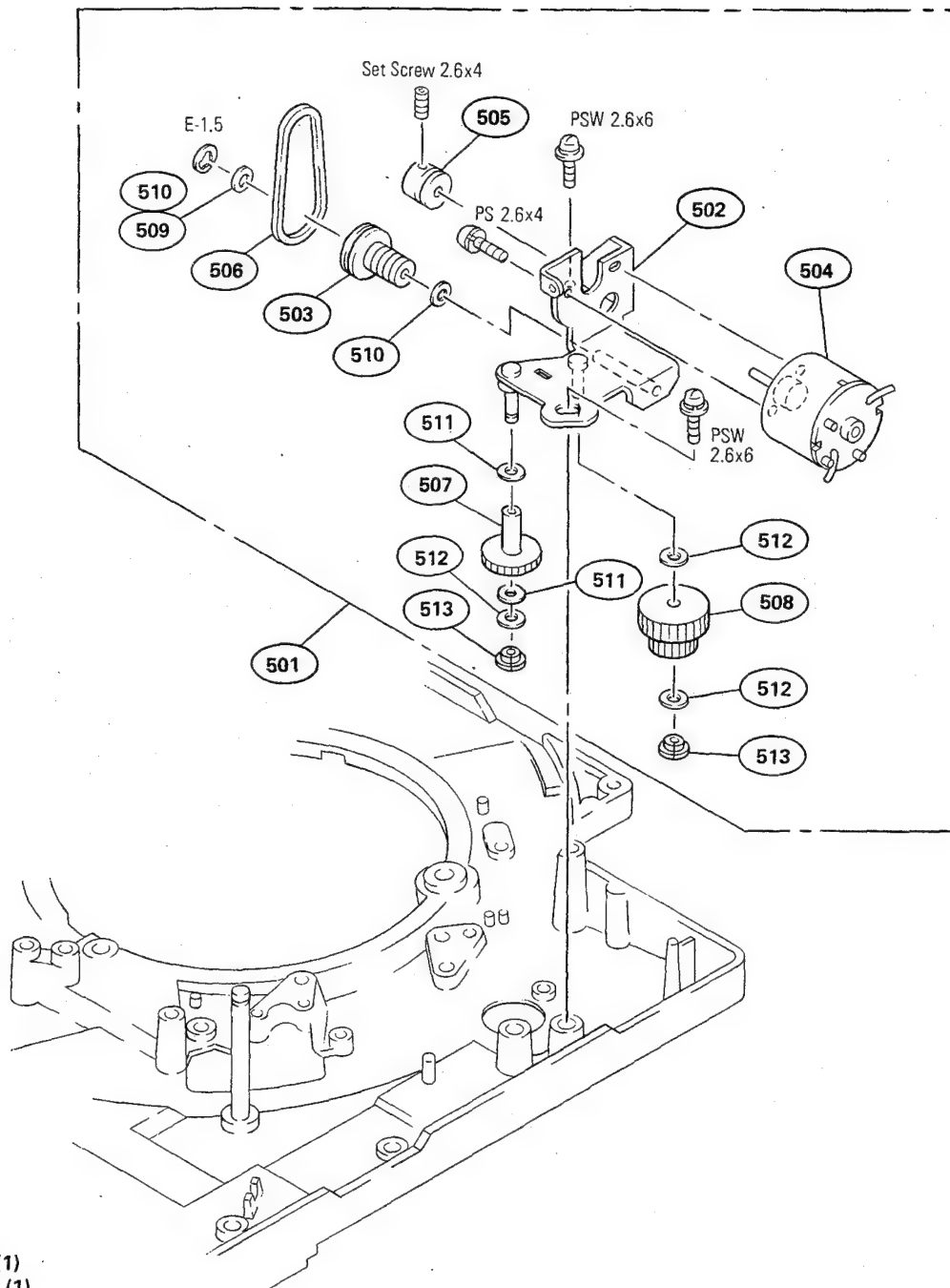
No.	Part No.	SP	Description
401	A-6744-019-A	o	STOPPER ASSY, RING
402	A-6746-058-A	o	ARM ASSY, TU
403	X-3685-824-3	o	ARM ASSY, T
404	X-3685-858-1	s	ROLLER ASSY, T GUIDE
405	1-570-028-11	s	SWITCH, MICRO
406	1-629-236-11	o	PRINTED CIRCUIT BOARD, LED-69
407	3-515-170-01	s	SPRING, TENSION
408	3-535-369-XX	s	SPRING, TENSION (12T)

No.	Part No.	SP	Description
409	3-685-812-01	o	JOINT, KM
410	3-685-903-03	o	ARM, DRAWER
411	3-686-005-04	s	SPRING, TENSION
412	3-686-006-01	s	SPRING
413	8-719-912-39	s	DIODE, SLR-932A



# THREADING MOTOR BLOCK

## Threading Motor Block

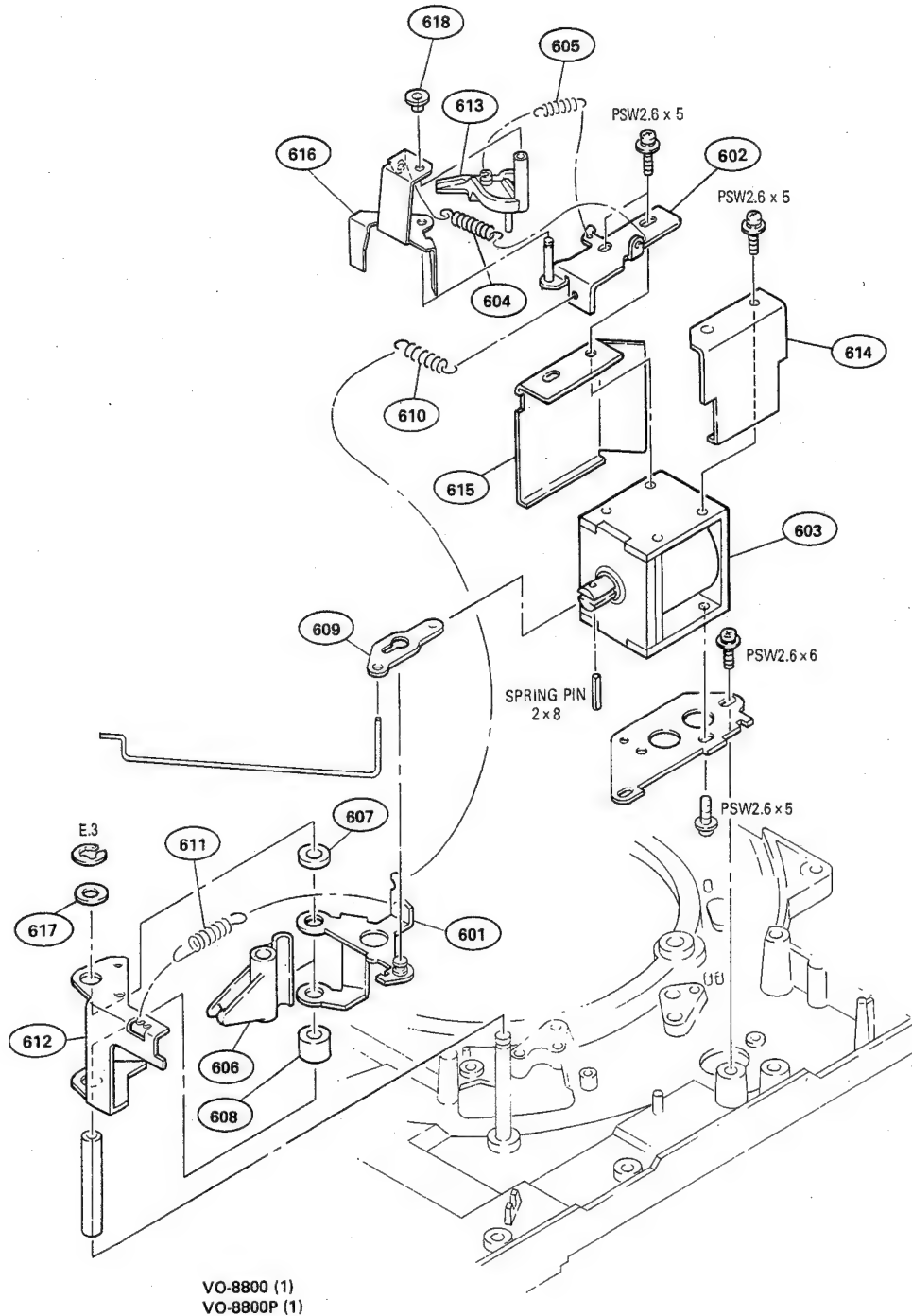


VO-8800 (1)  
VO-8800P (1)

No.	Part No.	SP	Description
501	A-6737-197-A	o	GEAR ASSY, LD
502	X-3685-845-2	o	BASE ASSY, LD GEAR
503	X-3685-851-1	s	GEAR ASSY, WORM
504	1-541-163-51	s	MOTOR
505	3-686-009-02	o	PULLEY, LD
506	3-686-010-03	s	BELT, LD
507	3-686-011-02	s	GEAR, THREADING
508	3-686-012-01	s	GEAR, DRIVE

No.	Part No.	SP	Description
509	3-701-437-01	s	WASHER, POLY 2MM DIA., 0.13T
510	3-701-437-11	s	WASHER, POLY 2MM DIA., 0.25T
511	3-701-439-11	s	WASHER, POLY 3MM DIA 0.25T
512	3-701-439-21	s	WASHER, POLY 3MM DIA., 0.5T
513	3-703-074-00	s	CAP 3, SHAFT

## Pinch Pressure Block



### No. Part No. SP Description

601	X-3685-822-1	o	LEVER ASSY, CHARGE
602	X-3685-852-3	o	PLATE ASSY, ADJUSTMENT, S
603	1-454-386-13	s	SOLENOID, PLUNGER
604	3-555-125-01	s	SPRING, TENSION
605	3-668-508-11	s	SPRING, TENSION
606	3-685-927-03	o	STOPPER, TAPE
607	3-685-929-01	o	SPACER
608	3-685-929-11	o	SPACER
609	3-685-931-01	o	JOINT
610	3-686-003-01	s	SPRING, TENSION

### No. Part No. SP Description

611	3-686-004-01	s	SPRING, TENSION
612	3-686-007-01	o	PLATE, PRESS, PINCH
613	3-687-905-02	o	PLATE, J
614	3-687-925-01	o	PLATE, SHIELD, PSOL
615	3-687-963-03	o	PLATE (2), SHIELD, PSOL
616	3-687-978-01	o	ARM, PM
617	3-701-441-21	s	WASHER, POLY 4MM DIA., 0.5T
618	3-703-075-00	s	CAP 2, SHAFT

### Threading Ring Block



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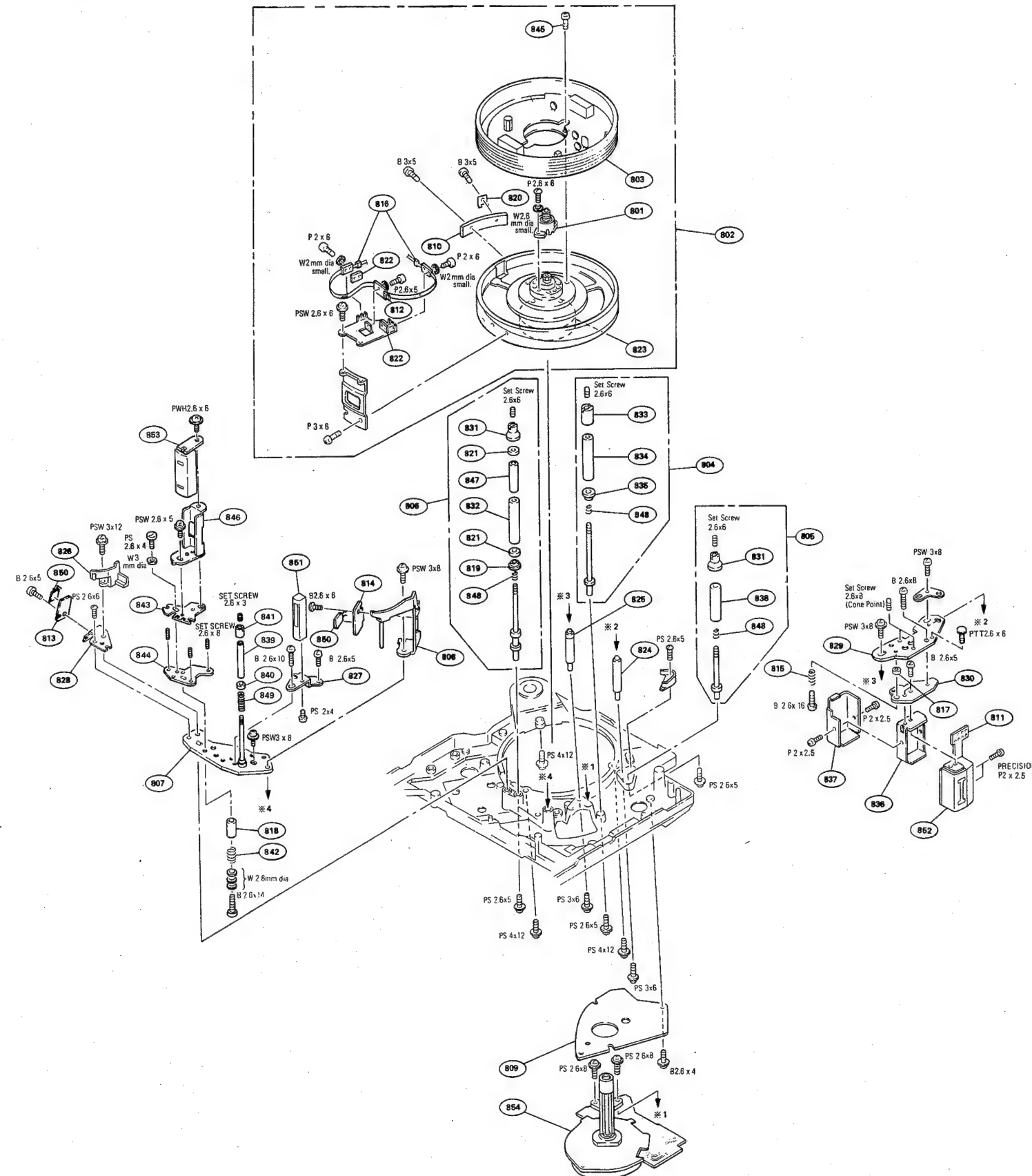
701 X-3668-727-0 s GUIDE ASSY, TAPE
702 X-3685-801-1 o SUPPORT (A) ASSY, R
703 X-3685-802-1 o SUPPORT (B) ASSY, R
704 X-3685-803-1 o SUPPORT (C) ASSY, R
705 X-3685-804-1 s ARM ASSY, P

706 X-3685-809-7 s RING SUB ASSY, THREADING
707 3-531-576-11 s RIVET
708 3-661-319-00 s ROLLER (A), GUIDE
709 3-685-934-01 s SPRING
710 3-685-939-01 s CAP, ROLLER

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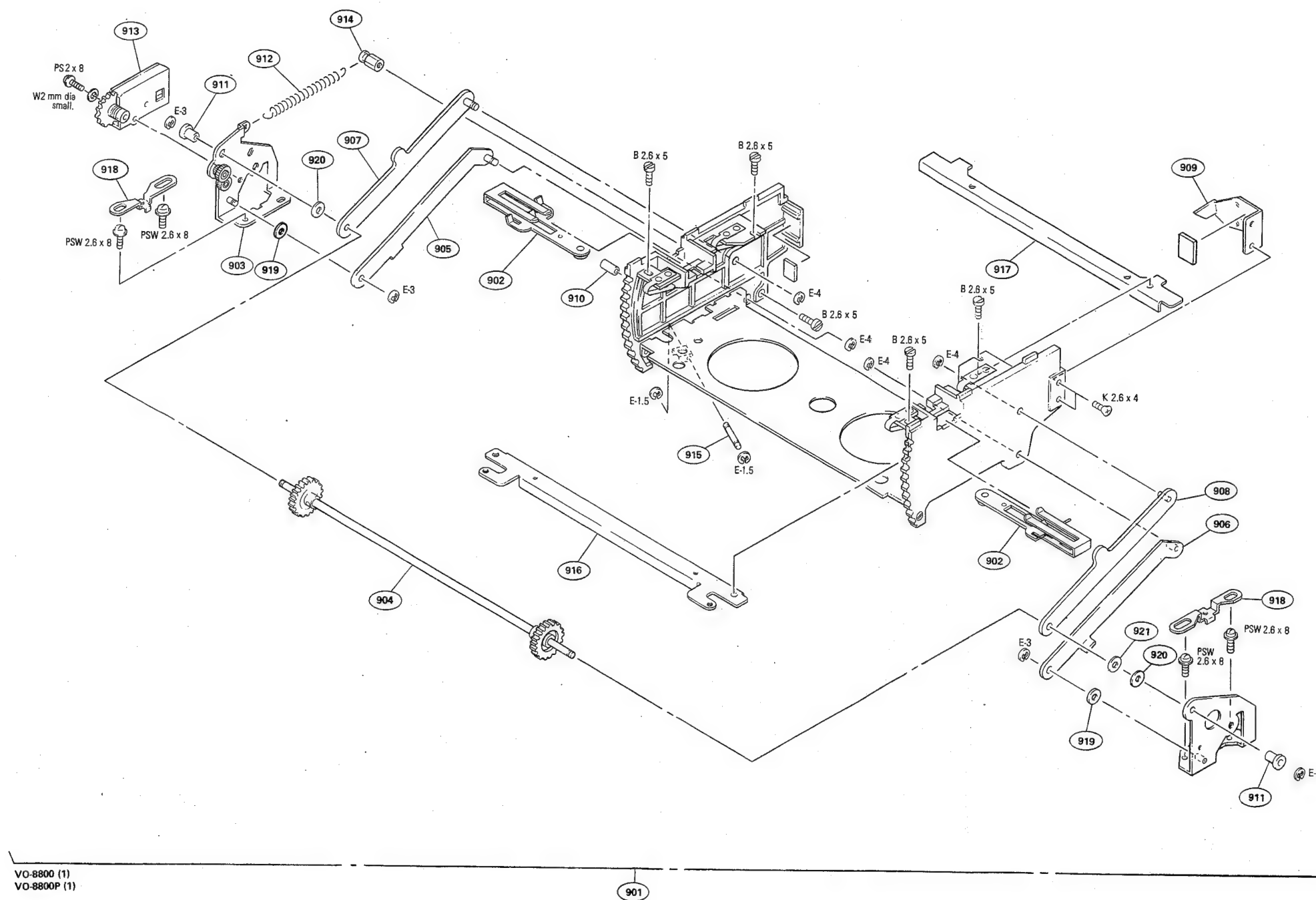
711	3-685-992-07	s	CAP
712	3-685-994-02	o	BASE, TR THREAD
713	3-687-950-01	o	PLATE, STOPPER
714	3-687-973-01	o	GUARD, TU ARM
715	3-698-916-01	s	CAP, GUIDE ROLLER
716	3-701-437-01	s	WASHER, POLY 2MM DIA., 0.13T
717	3-701-437-11	s	WASHER, POLY 2MM DIA., 0.25T
718	3-701-438-11	s	WASHER, POLY 2.5 MM DIA., 0.25T
719	3-701-438-21	s	WASHER, POLY 2.5 MM DIA., 0.5T

Head Drum, Stationary Head and Tape Guide Blocks



No.	Part No.	SP	Description
801	A-4926-251-A	s	VO-SR5 ASSY
802	A-6709-662-A	s	HEAD DRUM ASSY, DUH-49A-R (For UC)
	A-6709-664-A	s	HEAD DRUM ASSY, DUH-50A-R (For EK)
803	A-6709-663-A	s	UPPER DRUM ASSY, DUR-49-R (For UC)
	A-6709-665-A	s	UPPER DRUM ASSY, DUR-50-R (For EK)
804	A-6746-039-A	o	TG (4) ASSY
805	A-6746-040-C	o	TG (3) ASSY
806	A-6746-041-A	o	TG (2) ASSY
807	X-3685-808-4	o	BASE (A) ASSY, EN
808	X-3685-811-1	s	LID OPEN SUB ASSY
809	X-3685-844-1	o	PLATE ASSY, SHIELD, CPS
810	1-586-633-00	s	DETECTOR, CONDENSATION
811	1-611-954-11	o	PRINTED CIRCUIT BOARD, DU-58
812	1-612-593-11	o	PRINTED CIRCUIT BOARD, SR-22
813	1-629-238-11	o	PRINTED CIRCUIT BOARD, SE-99
814	1-629-239-11	o	PRINTED CIRCUIT BOARD, SE-118
815	3-437-352-00	s	SPRING, COMPRESSION
816	3-641-645-00	s	BRUSH
817	3-642-718-00	o	SPACER (2.6x10)
818	3-642-719-00	o	SPACER (2.6x11)
819	3-654-602-00	s	RETAINER, BEARING
820	3-655-631-00	o	TERMINAL, GROUND
821	3-655-691-01	s	BEARING, BALL
822	3-665-001-00	o	NUT, PLATE
823	3-685-004-01	o	PULLEY, DRUM
824	3-685-804-01	o	SUPPORT (1), EX
825	3-685-805-01	o	SUPPORT (2), EX
826	3-685-806-01	o	RETAINER, TAPE
827	3-685-896-01	o	BASE, ERASE
828	3-685-897-03	o	BRACKET, T.D
829	3-685-899-01	o	BASE (A), EX
830	3-685-900-01	o	BASE (B), EX
831	3-685-920-01	s	FLANGE, TAPE
832	3-685-921-01	s	GUIDE, TAPE
833	3-685-924-01	s	FLANGE (U), EX
834	3-685-925-01	s	GUIDE, EX
835	3-685-926-01	s	FLANGE (L), EX
836	3-685-978-01	o	CASE, AU
837	3-685-979-01	o	CASE (REAR), AU
838	3-686-020-03	s	GUIDE, TPAE
839	3-687-968-01	s	GUIDE, TG-1
840	3-687-969-01	s	FLANGE, TG-1
841	3-687-970-01	s	SCREW, TG-1
842	3-698-906-01	s	SPRING, COMPRESSION
843	3-698-912-01	o	BASE (C-2), EN
844	3-698-914-01	o	BASE (B-2), EN
845	3-703-467-00	s	SCREW
846	3-731-620-01	o	BRACKET, TC
847	4-855-006-01	s	SPACER (3x12)
848	4-866-143-00	o	SPRING, COMPRESSION
849	4-868-051-01	o	SPRING, COMPRESSION
850	8-719-110-32	s	DIODE PH302B
851	8-825-544-20	s	HEAD, ERASE
852	8-825-578-22	s	HEAD, ACE (EPS264-5803)
853	8-825-771-31	s	HEAD, T/C (PP295-58)
854	8-835-351-01	s	MOTOR, DC (BHF-1913B)

Cassette – Up Compartment Block

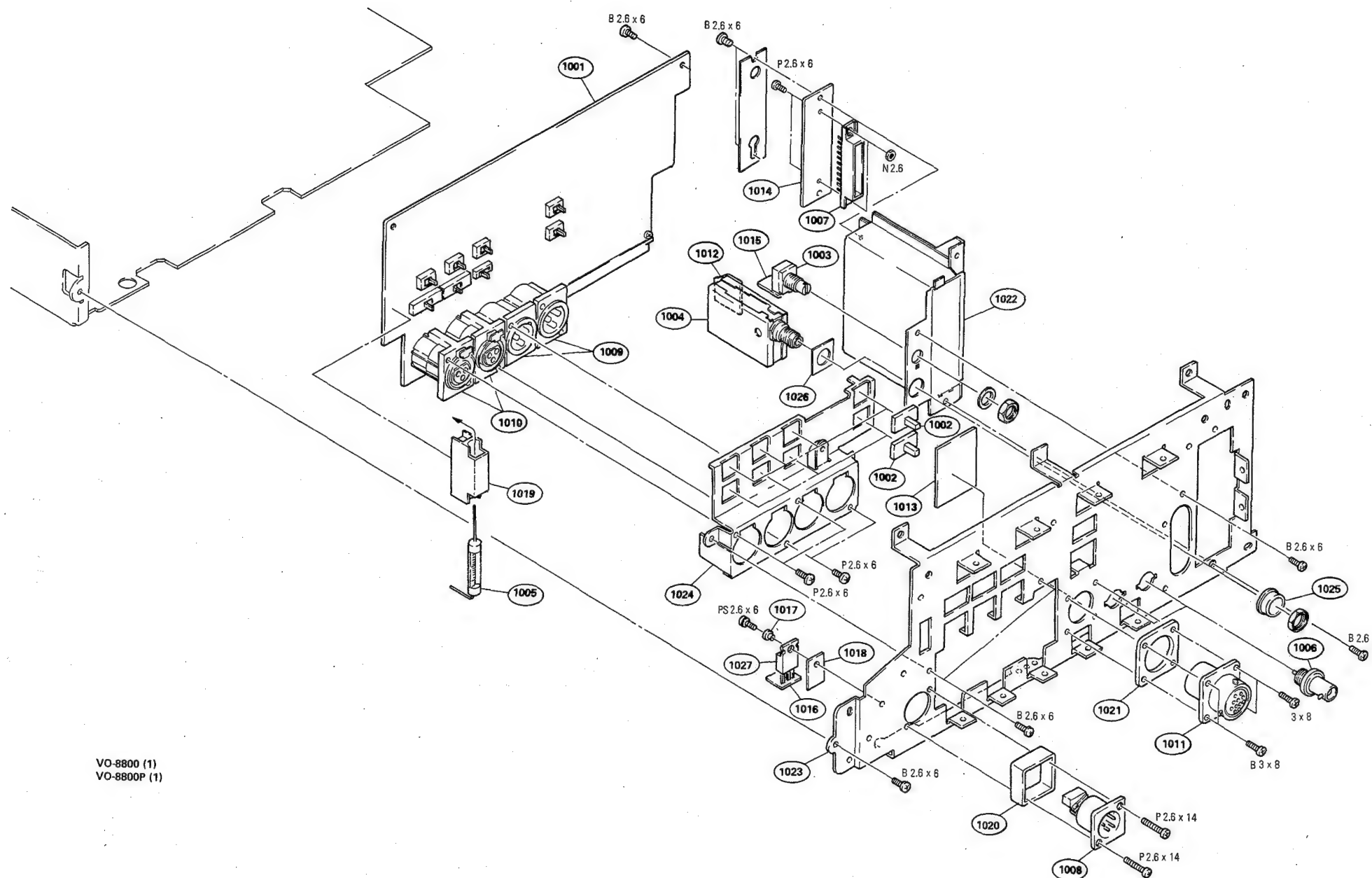


No.	Part No.	SP	Description
901	A-6751-200-B	s	CASSETTE COMPARTMENT ASSY
902	X-3657-049-0	o	RETAINER ASSY, C REEL
903	X-3685-826-2	o	HOLDER (L) ASSY, C
904	X-3685-832-2	o	GEAR ASSY, T
905	X-3685-834-3	o	ARM (LEFT LOWER) ASSY, C
906	X-3685-835-1	o	ARM (RIGHT LOWER) ASSY, C
907	X-3685-836-1	o	ARM (LEFT UPPER) ASSY, C
908	X-3685-837-1	o	ARM (RIGHT UPPER) ASSY, C
909	3-657-119-00	o	PLATE, RELEASE, (C) LID LOCK
910	3-657-120-04	o	ROLLER
911	3-657-195-00	s	SLEEVE, C
912	3-657-238-00	o	SPRING, TENSION
913	3-681-528-00	o	DAMPER
914	3-685-945-01	o	HOOK, SPRING, C
915	3-685-946-01	s	PIN, LOCK, LEVER, E
916	3-685-947-01	o	STAY (FRONT), C
917	3-685-948-01	o	STAY (REAR), C
918	3-685-949-01	o	RETAINER, SPRING
919	3-701-441-21	s	WASHER, POLY 4MM DIA., 0.5T
920	3-701-444-11	s	WASHER, POLY 6MM DIA., 0.25T
921	3-701-444-21	s	WASHER, POLY 6MM DIA., 0.5T

VO-8800 (1)  
VO-8800P (1)

# CONNECTOR PANEL BLOCK CONNECTOR PANEL BLOCK

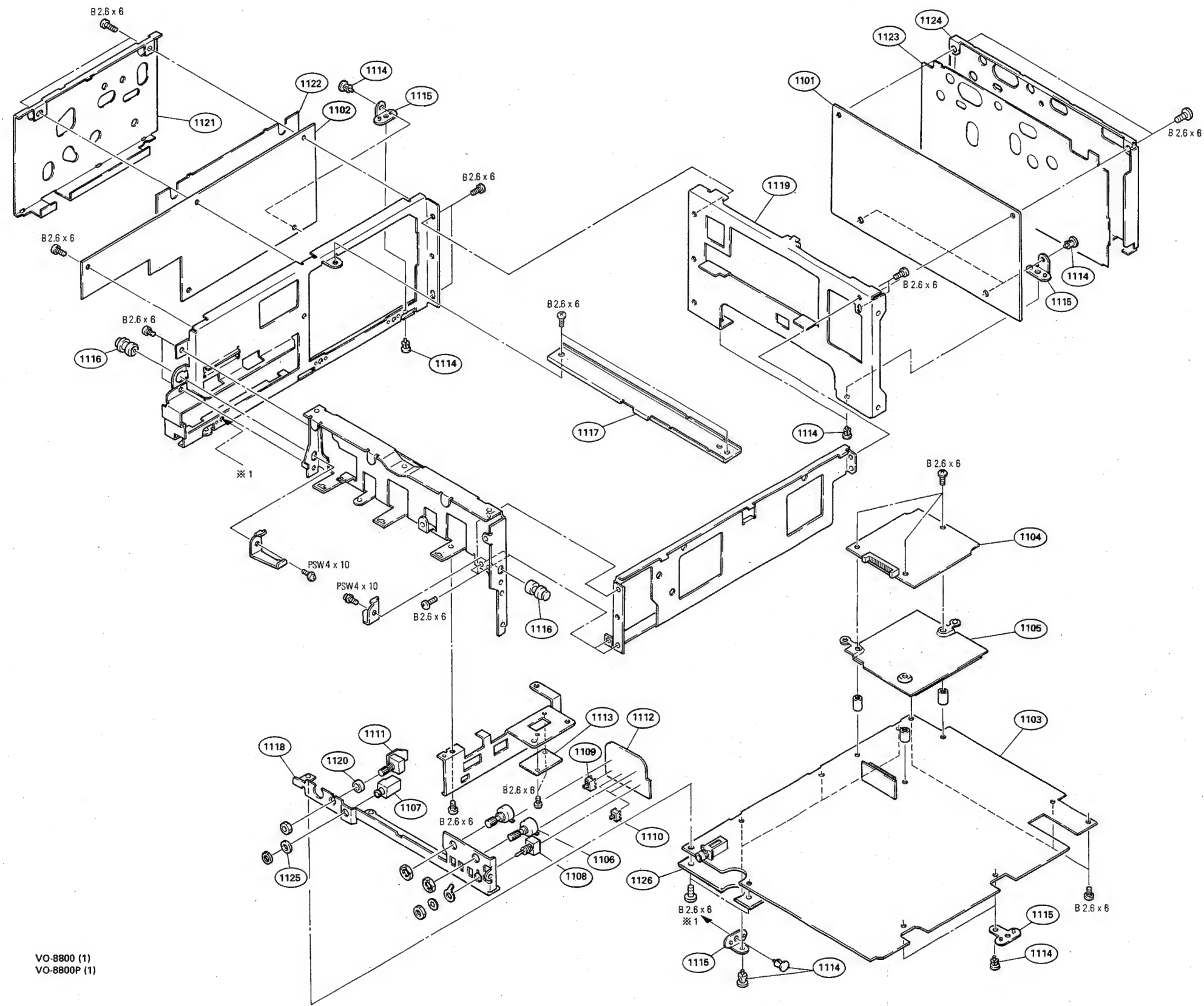
## Connector Panel Block



VO-8800 (1)  
VO-8800P (1)

No.	Part No.	SP	Description
1001	A-6727-050-A	o	MOUNTED CIRCUIT BOARD, CP-135 (for EK)
	A-6727-055-A	o	MOUNTED CIRCUIT BOARD, CP-134 (for UC)
1002	X-3731-610-1	s	LEVER (CP) ASSY, SW
1003	1-237-764-12	s	RES, VAR, CARBON 100k
1004	1-464-841-21	s	MODULATOR, RF (RFU-789) (for UC)
1005	1-548-119-21	s	HOURS METER
1006	1-561-781-21	s	CONNECTOR, BNC (RECEPTACLE)
1007	1-563-334-11	o	HOUSING, CONNECTOR (DIP) 32P
1008	1-564-603-11	s	CONNECTOR, (WITH DC SW) 4P
1009	1-565-281-11	o	CONNECTOR, XLR TYPE 3P
1010	1-565-282-11	o	CONNECTOR, XLR TYPE 3P
1011	1-568-179-11	s	CONNECTOR, ROUND TYPE 14P
1012	1-629-240-11	o	PRINTED CIRCUIT BOARD, RMD-2 (for UC)
1013	1-629-241-11	o	PRINTED CIRCUIT BOARD, CM-23
1014	1-629-248-11	o	PRINTED CIRCUIT BOARD, CN-271
1015	1-629-249-11	o	PRINTED CIRCUIT BOARD, VR-85
1016	1-629-250-11	o	PRINTED CIRCUIT BOARD, TR-54
1017	2-832-007-00	s	BUSHING (K), INSULATING
1018	3-660-978-00	o	SHEET, HEAT RESISTING
1019	3-731-611-01	o	SPACER, HM
1020	3-731-625-01	o	SPACER, POWER
1021	3-731-626-01	o	SPACER, 14P
1022	3-731-642-01	o	CHASSIS, VB
1023	3-731-663-01	o	CHASSIS, CP
1024	3-731-665-01	o	CHASSIS, XL
1025	3-731-668-01	o	SPACER, RF (for UC)
1026	3-731-669-01	o	SHEET, INSULATING, RF (for UC)
1027	8-729-205-32	s	TRANSISTOR 2SB553-Y

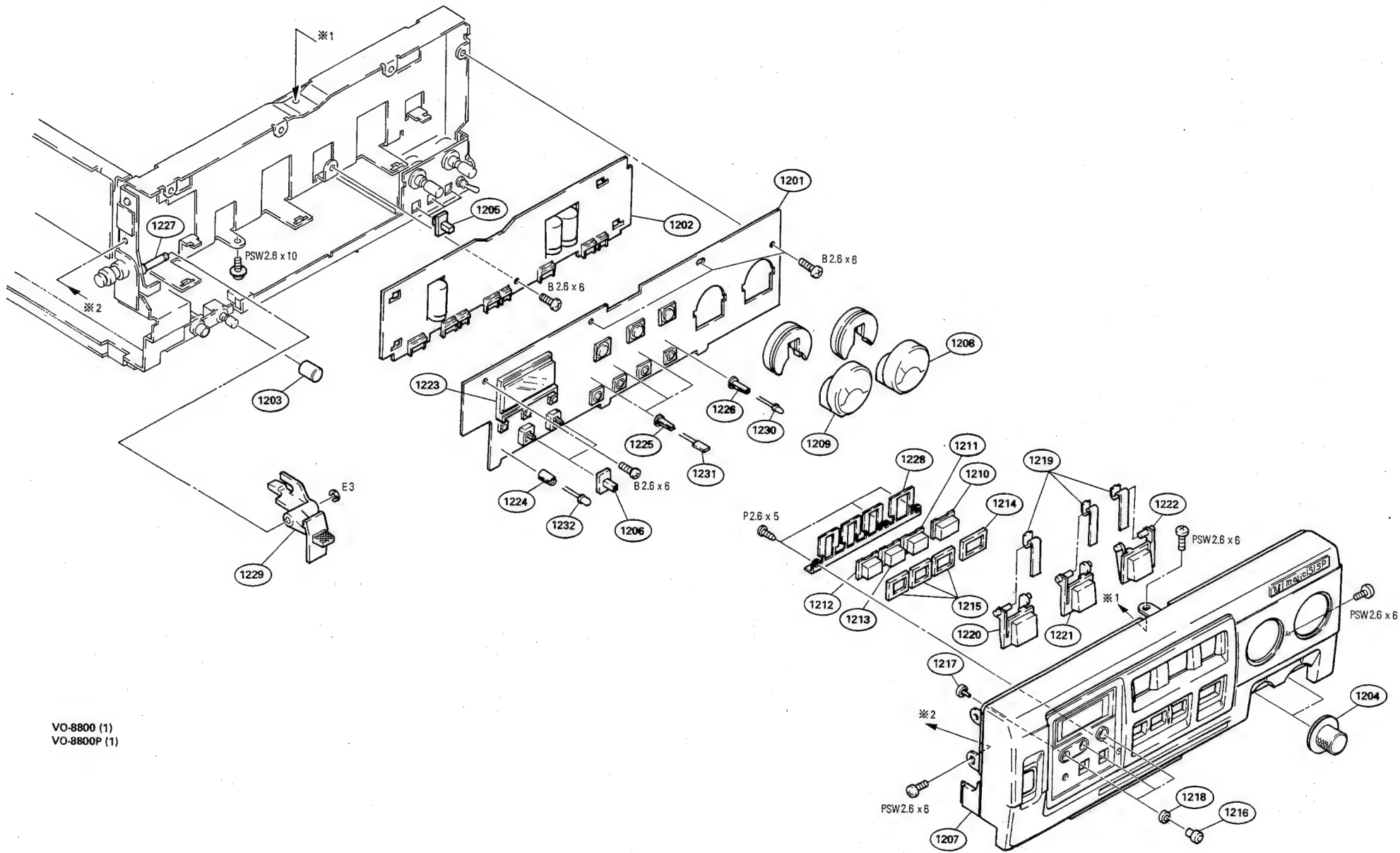
Printed Circuit Board and Frame Blocks



No.	Part No.	SP	Description
1101	A-6715-420-B	o	MOUNTED CIRCUIT BOARD, SV-108 (for UC)
	A-6715-421-B	o	MOUNTED CIRCUIT BOARD, SV-108A (for EK)
1102	A-6717-528-A	o	MOUNTED CIRCUIT BOARD, SY-131 (for UC)
	A-6717-530-A	o	MOUNTED CIRCUIT BOARD, SY-131A (for EK)
1103	A-6727-051-A	o	MOUNTED CIRCUIT BOARD, VA-76 (for EK)
	A-6727-054-A	o	MOUNTED CIRCUIT BOARD, VA-75 (for UC)
1104	A-6727-052-A	o	MOUNTED CIRCUIT BOARD, CR-35 (for EK)
	A-6727-057-A	o	MOUNTED CIRCUIT BOARD, CR-34 (for UC)
1105	X-3731-609-1	o	PLATE ASSY, SHIELD, CR
1106	1-237-701-11	s	RES, VAR, CARBON 5k
1107	1-507-195-21	s	SPECIAL REMOTE CONTROL JACK
1108	1-553-245-00	s	SWITCH, TOGGLE
1109	1-570-835-11	s	SWITCH, SLIDE
1110	1-570-844-11	s	SWITCH, SLIDE
1111	1-629-242-11	o	PRINTED CIRCUIT BOARD, HP-45
1112	1-629-246-12	o	PRINTED CIRCUIT BOARD, SW-296
1113	1-629-914-11	o	PRINTED CIRCUIT BOARD, BP-15 (UC: UP TO S/N 10700) (EK: UP TO S/N 10300)
1114	3-646-090-00	s	RIVENT, NYLON
1115	3-657-153-00	o	HINGE
1116	3-731-617-01	o	SUSPENSION
1117	3-731-640-01	o	CHASSIS, UP
1118	3-731-643-01	o	CHASSIS, VF
1119	3-731-644-01	o	CHASSIS, B
1120	3-731-666-01	o	SPACER, V
1121	3-731-674-01	o	SHIELD, SY (UC: S/N 10151 AND HIGHER)
1122	3-731-675-01	o	SHEET, INSULATING, SY (UC: S/N 10151 AND HIGHER)
1123	3-731-679-01	o	SHEET, INSULATING, SV (UC: S/N 10151 AND HIGHER) (EK: S/N 10301 AND HIGHER)
1124	X-3731-616-1	o	SHIELD ASSY, SV (UC: S/N 10151 AND HIGHER) (EK: S/N 10301 AND HIGHER)
1125	7-623-926-11	s	WASHER, POLY 5MM DIA., 0.8T
1126	3-731-687-01	o	SHEET, INSULATING, VA (UC: S/N 10701 AND HIGHER) (EK: S/N 10301 AND HIGHER)

VO-8800 (1)  
VO-8800P (1)

Front Panel and Function Key Blocks



No.	Part No.	SP	Description
1201	A-6717-527-A	o	MOUNTED CIRCUIT BOARD, KY-147
1202	A-6717-529-A	o	MOUNTED CIRCUIT BOARD, PD-44
1203	X-3664-208-0	s	KNOB ASSY, FADE
1204	X-3698-702-1	s	KNOB ASSY, VOLUME
1205	X-3731-601-1	s	LEVER (C) ASSY, SW
1206	X-3731-602-1	s	LEVER (A) ASSY, SW
1207	X-3731-608-1	o	PANEL SUB (RP) ASSY, F
1208	1-520-495-11	s	METER, LEVEL
1209	1-520-495-31	s	METER, LEVEL
1210	3-686-076-31	s	KEY TOP (B)
1211	3-686-077-31	s	KEY TOP (A)
1212	3-686-077-51	s	KEY TOP (A)
1213	3-686-077-61	s	KEY TOP (A)
1214	3-686-082-01	o	SPACER (B)
1215	3-686-083-01	o	SPACER (A)
1216	3-686-084-01	s	PUSH BUTTON
1217	3-686-085-01	s	PIN, PUSH BUTTON
1218	3-686-086-01	s	CUSHION, BUTTON
1219	3-694-739-01	o	SPRING
1220	3-694-781-21	s	BUTTON (A)
1221	3-694-781-31	s	BUTTON (A)
1222	3-694-782-11	s	BUTTON (B)
1223	3-719-182-11	o	HOLDER, LCD
1224	3-731-607-01	o	HOLDER (S), LED
1225	3-731-608-01	o	HOLDER (2 x 5), LED
1226	3-731-609-01	o	HOLDER (L), LED
1227	3-731-616-01	o	SHAFT, E LEVER
1228	3-731-628-01	o	SPRING
1229	3-731-631-01	s	LEVER, EJECT
1230	8-719-902-27	s	DIODE EBR3402S
1231	8-719-928-51	s	DIODE PR5551K
1232	8-719-955-05	s	DIODE BR5505S

VO-8800 (1)  
VO-8800P (1)





### 16-3. ELECTRICAL PARTS LIST

#### CAPACITOR, MICA, SILVERED

##### Part No. SP Description

1-107-026-00 s MICA 5.1pF+-0.5pF 500V  
 1-107-049-00 s MICA 8.2pF+-0.5pF 500V  
 1-107-202-00 s MICA 10pF 5% 500V  
 1-107-204-00 s MICA 12pF 5% 500V  
 1-107-206-00 s MICA 15pF 5% 500V

1-107-210-00 s MICA 22pF 5% 500V  
 1-107-211-00 s MICA 24pF 5% 500V  
 1-107-157-00 s MICA 27pF 5% 500V  
 1-107-158-00 s MICA 30pF 5% 500V  
 1-107-076-00 s MICA 43pF 5% 50V

1-107-077-00 s MICA 47pF 5% 50V  
 1-107-165-00 s MICA 56pF 5% 500V  
 1-107-036-00 s MICA 68pF 5% 500V  
 1-107-087-00 s MICA 120pF 5% 50V  
 1-109-538-00 s MICA 130pF 5% 100V

#### CAPACITOR, CHIP CERAMIC

##### Part No. SP Description

1-163-093-00 s CHIP CERAMIC 10pF 5% 50V  
 1-163-097-00 s CHIP CERAMIC 15pF 5% 50V  
 1-163-101-00 s CHIP CERAMIC 22pF 5% 50V  
 1-163-105-00 s CHIP CERAMIC 33pF 5% 50V  
 1-163-109-00 s CHIP CERAMIC 47pF 5% 50V

1-163-113-00 s CHIP CERAMIC 68pF 5% 50V  
 1-163-117-00 s CHIP CERAMIC 100pF 5% 50V  
 1-163-121-00 s CHIP CERAMIC 150pF 5% 50V  
 1-163-125-00 s CHIP CERAMIC 220pF 5% 50V  
 1-163-133-00 s CHIP CERAMIC 470pF 5% 50V

1-163-137-00 s CHIP CERAMIC 680pF 5% 50V  
 1-163-141-00 s CHIP CERAMIC 1000pF 5% 50V  
 1-163-145-00 s CHIP CERAMIC 1500pF 10% 50V  
 1-163-017-00 s CHIP CERAMIC 4700pF 10% 50V  
 1-163-019-00 s CHIP CERAMIC 6800pF 10% 50V

1-163-021-00 s CHIP CERAMIC 0.01 10% 50V  
 1-163-035-00 s CHIP CERAMIC 0.047 50V  
 1-163-038-00 s CHIP CERAMIC 0.1 50V

#### RESISTOR, CHIP

##### Part No. SP Description

1-216-295-00 s CHIP 0 5% 1/10W  
 1-216-298-00 s CHIP 2.2 5% 1/10W  
 1-216-001-00 s CHIP 10 5% 1/10W  
 1-216-009-00 s CHIP 22 5% 1/10W  
 1-216-013-00 s CHIP 33 5% 1/10W

1-216-017-00 s CHIP 47 5% 1/10W  
 1-216-025-00 s CHIP 100 5% 1/10W  
 1-216-029-00 s CHIP 150 5% 1/10W  
 1-216-033-00 s CHIP 220 5% 1/10W  
 1-216-035-00 s CHIP 270 5% 1/10W

1-216-037-00 s CHIP 330 5% 1/10W  
 1-216-041-00 s CHIP 470 5% 1/10W  
 1-216-043-00 s CHIP 560 5% 1/10W  
 1-216-045-00 s CHIP 680 5% 1/10W  
 1-216-047-00 s CHIP 820 5% 1/10W

1-216-049-00 s CHIP 1k 5% 1/10W  
 1-216-051-00 s CHIP 1.2k 5% 1/10W  
 1-216-053-00 s CHIP 1.5k 5% 1/10W  
 1-216-055-00 s CHIP 1.8k 5% 1/10W  
 1-216-057-00 s CHIP 2.2k 5% 1/10W

1-216-059-00 s CHIP 2.7k 5% 1/10W  
 1-216-061-00 s CHIP 3.3k 5% 1/10W  
 1-216-063-00 s CHIP 3.9k 5% 1/10W  
 1-216-065-00 s CHIP 4.7k 5% 1/10W  
 1-216-067-00 s CHIP 5.6k 5% 1/10W

1-216-069-00 s CHIP 6.8k 5% 1/10W  
 1-216-071-00 s CHIP 8.2k 5% 1/10W  
 1-216-073-00 s CHIP 10k 5% 1/10W  
 1-216-075-00 s CHIP 12k 5% 1/10W  
 1-216-077-00 s CHIP 15k 5% 1/10W

1-216-079-00 s CHIP 18k 5% 1/10W  
 1-216-081-00 s CHIP 22k 5% 1/10W  
 1-216-083-00 s CHIP 27k 5% 1/10W  
 1-216-085-00 s CHIP 33k 5% 1/10W  
 1-216-089-00 s CHIP 47k 5% 1/10W

1-216-091-00 s CHIP 56k 5% 1/10W  
 1-216-093-00 s CHIP 68k 5% 1/10W  
 1-216-095-00 s CHIP 82k 5% 1/10W  
 1-216-097-00 s CHIP 100k 5% 1/10W  
 1-216-099-00 s CHIP 120k 5% 1/10W

1-216-101-00 s CHIP 150k 5% 1/10W  
 1-216-105-00 s CHIP 220k 5% 1/10W  
 1-216-107-00 s CHIP 270k 5% 1/10W  
 1-216-109-00 s CHIP 330k 5% 1/10W  
 1-216-113-00 s CHIP 470k 5% 1/10W

1-216-117-00 s CHIP 680k 5% 1/10W  
 1-216-121-00 s CHIP 1.0M 5% 1/10W

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RESISTOR, CARBON  
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Part No. SP Description

1-249-405-11 s CARBON 100 5% 1/4W  
1-249-410-11 s CARBON 270 5% 1/4W  
1-249-411-11 s CARBON 330 5% 1/4W  
1-249-412-11 s CARBON 390 5% 1/4W  
1-249-418-11 s CARBON 1.2k 5% 1/4W  
  
1-249-425-11 s CARBON 4.7k 5% 1/4W  
1-249-428-11 s CARBON 8.2k 5% 1/4W  
1-249-429-11 s CARBON 10k 5% 1/4W  
1-249-432-11 s CARBON 18k 5% 1/4W  
1-249-435-11 s CARBON 33k 5% 1/4W  
  
1-249-437-11 s CARBON 47k 5% 1/4W

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RESISTOR, METAL  
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Part No. SP Description

1-215-373-31 s METAL 10 1% 1/6W  
1-215-376-00 s METAL 13 1% 1/6W  
1-215-394-00 s METAL 75 1% 1/4W  
1-215-408-00 s METAL 300 1% 1/6W  
1-215-414-00 s METAL 510 1% 1/6W  
  
1-215-420-00 s METAL 910 1% 1/6W  
1-215-421-00 s METAL 1.0k 1% 1/6W  
1-215-422-00 s METAL 1.1k 1% 1/6W  
1-215-428-00 s METAL 2.0k 1% 1/6W  
1-215-434-00 s METAL 3.6k 1% 1/6W  
  
1-215-438-00 s METAL 5.1k 1% 1/6W  
1-215-460-00 s METAL 43k 1% 1/6W  
1-215-476-00 s METAL 200k 1% 1/6W  
1-215-478-00 s METAL 240k 1% 1/6W  
1-215-479-00 s METAL 270k 1% 1/4W  
  
1-215-490-00 s METAL 750k 1% 1/6W

-----  
INDUCTOR, MICRO  
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Part No. SP Description

1-408-408-00 s INDUCTOR, MICRO 8.2 5%  
1-408-411-00 s INDUCTOR, MICRO 15 5%  
1-408-413-00 s INDUCTOR, MICRO 22 5%  
1-408-414-00 s INDUCTOR, MICRO 27 5%  
1-408-416-00 s INDUCTOR, MICRO 39 5%  
  
1-408-418-00 s INDUCTOR, MICRO 56 5%  
1-408-419-00 s INDUCTOR, MICRO 68 5%  
1-408-423-00 s INDUCTOR, MICRO 150 5%  
1-408-424-00 s INDUCTOR, MICRO 180 5%  
1-408-429-00 s INDUCTOR, MICRO 470 5%

# BP-15 BOARD

Ref. No.  
or Q'ty Part No. SP Description

This board is for Serial No. up to 10300.

1-629-914-11 o PRINTED CIRCUIT BOARD, BP-15

CN591 1-508-902-00 o CONNECTOR, 4P, MALE  
CN592 1-508-950-00 s CONNECTOR, IL 4P, MALE

# BP-16 BOARD

Ref. No.  
or Q'ty Part No. SP Description

This board is for Serial No. 10301 and higher.

1-630-549-11 o PRINTED CIRCUIT BOARD, BP-16  
CN1 1-508-950-00 s CONNECTOR, IL 4P, MALE

# CM-23 BOARD

Ref. No.  
or Q'ty Part No. SP Description

1-629-241-12 o PRINTED CIRCUIT BOARD, CM-23

CN1 1-568-179-11 s CONNECTOR, ROUND 14P, FEMALE

# CN-271 BOARD

Ref. No.  
or Q'ty Part No. SP Description

1-629-248-11 o PRINTED CIRCUIT BOARD, CN-271

CN543 1-563-334-11 o HOUSING, 32P

# CP-135 BOARD

Ref. No.  
or Q'ty Part No. SP Description

A-6727-050-A o MOUNTED CIRCUIT BOARD, CP-135  
3-621-124-00 s SPACER  
3-731-611-01 o SPACER, HM  
3-731-665-01 o CHASSIS, XL

C1 1-124-584-00 s ELECT 100uF 20% 10V  
C3 1-124-584-00 s ELECT 100uF 20% 10V  
C4 1-124-584-00 s ELECT 100uF 20% 10V  
C5 1-126-157-11 s ELECT 10uF 20% 16V  
C6 1-162-732-11 s CERAMIC 820PF 1% 50V

C7 1-124-584-00 s ELECT 100uF 20% 10V  
C8 1-126-157-11 s ELECT 10uF 20% 16V  
C9 1-126-157-11 s ELECT 10uF 20% 16V  
C12 1-126-160-11 s ELECT 1uF 20% 50V  
C13 1-126-157-11 s ELECT 10uF 20% 16V

C14 1-124-589-11 s ELECT 47uF 20% 16V  
C15 1-107-075-00 s MICA 39PF 5% 50V  
C18 1-126-157-11 s ELECT 10uF 20% 16V  
C19 1-130-491-00 s MYLAR 0.047uF 5% 50V  
C20 1-130-491-00 s MYLAR 0.047uF 5% 50V

C22 1-131-587-11 s TANTALUM 0.68uF 5% 35V  
C23 1-164-161-11 s CERAMIC, CHIP 0.0022uF 10% 100V  
C26 1-124-225-00 s ELECT 100uF 20% 6.3V  
C28 1-131-347-00 s TANTALUM 1uF 10% 35V  
C29 1-124-589-11 s ELECT 47uF 20% 16V

C30 1-164-161-11 s CERAMIC, CHIP 0.0022uF 10% 100V  
C35 1-131-347-00 s TANTALUM 1uF 10% 35V  
C36 1-130-481-00 s MYLAR 0.0068uF 5% 50V  
C39 1-126-157-11 s ELECT 10uF 20% 16V  
C41 1-124-589-11 s ELECT 47uF 20% 16V

C43 1-124-589-11 s ELECT 47uF 20% 16V  
C48 1-107-086-00 s MICA 110PF 5% 50V  
C49 1-124-589-11 s ELECT 47uF 20% 16V  
C51 1-107-159-00 s MICA 33PF 5% 500V  
C53 1-107-208-00 s MICA 18PF 5% 500V

C54 1-126-157-11 s ELECT 10uF 20% 16V  
C71 1-163-037-11 s CERAMIC, CHIP 0.022uF 10% 25V  
C75 1-124-225-00 s ELECT 100uF 20% 6.3V  
C76 1-163-021-00 s CERAMIC, CHIP 0.01uF 5% 50V  
C77 1-163-021-00 s CERAMIC, CHIP 0.01uF 5% 50V

C78 1-163-021-00 s CERAMIC, CHIP 0.01uF 5% 50V  
C79 1-124-589-11 s ELECT 47uF 20% 16V  
C81 1-124-589-11 s ELECT 47uF 20% 16V  
C83 1-124-584-00 s ELECT 100uF 20% 10V  
C84 1-124-225-00 s ELECT 100uF 20% 6.3V

C85 1-163-091-00 s MICA 8PF 5% 50V  
C86 1-107-044-00 s MICA 3.3PF 500V  
C88 1-124-225-00 s ELECT 100uF 20% 6.3V  
C89 1-162-873-21 s CERAMIC 56PF 5% 50V  
C95 1-124-589-11 s ELECT 47uF 20% 16V

C96 1-162-878-21 s CERAMIC 91PF 5% 50V  
C97 1-126-157-11 s ELECT 10uF 20% 16V  
C98 1-124-584-00 s ELECT 100uF 20% 10V  
C503 1-126-157-11 s ELECT 10uF 20% 16V  
C504 1-126-157-11 s ELECT 10uF 20% 16V

C505 1-124-225-00 s ELECT 100uF 20% 6.3V  
C507 1-124-225-00 s ELECT 100uF 20% 6.3V  
C513 1-126-157-11 s ELECT 10uF 20% 16V  
C514 1-126-157-11 s ELECT 10uF 20% 16V  
C533 1-126-157-11 s ELECT 10uF 20% 16V

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

## (CP-135 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C534	1-126-157-11	s ELECT 10uF 20% 16V
C601	1-126-157-11	s ELECT 10uF 20% 16V
C602	1-126-157-11	s ELECT 10uF 20% 16V
C603	1-126-157-11	s ELECT 10uF 20% 16V
C604	1-126-157-11	s ELECT 10uF 20% 16V
C605	1-126-157-11	s ELECT 10uF 20% 16V
C606	1-126-157-11	s ELECT 10uF 20% 16V
C607	1-126-160-11	s ELECT 1uF 20% 50V
C608	1-126-176-11	s ELECT 220uF 20% 10V
C610	1-126-101-11	s ELECT 100uF 20% 16V
C611	1-126-101-11	s ELECT 100uF 20% 16V
C612	1-163-021-00	s CERAMIC, CHIP 0.01uF 5% 50V
C613	1-126-157-11	s ELECT 10uF 20% 16V
C614	1-126-157-11	s ELECT 10uF 20% 16V
C651	1-126-157-11	s ELECT 10uF 20% 16V
C652	1-126-157-11	s ELECT 10uF 20% 16V
C701	1-126-157-11	s ELECT 10uF 20% 16V
C702	1-126-101-11	s ELECT 100uF 20% 16V
C703	1-126-101-11	s ELECT 100uF 20% 16V
C704	1-124-120-11	s ELECT 220uF 20% 25V
C705	1-124-120-11	s ELECT 220uF 20% 25V
C801	1-126-157-11	s ELECT 10uF 20% 16V
C802	1-126-101-11	s ELECT 100uF 20% 16V
C803	1-126-101-11	s ELECT 100uF 20% 16V
C804	1-124-120-11	s ELECT 220uF 20% 25V
C805	1-124-120-11	s ELECT 220uF 20% 25V
CN601	1-506-747-11	s CONNECTOR, DIN 64P, MALE
CN602	1-506-468-11	s CONNECTOR, 3P, MALE
CN604	1-565-282-11	o CONNECTOR, XLR 3P, FEMALE "AUDIO IN CH-1/L/DUB"
CN605	1-565-282-11	o CONNECTOR, XLR 3P, FEMALE "AUDIO IN CH-2/R"
CN606	1-565-281-11	o CONNECTOR, XLR 3P, MALE "AUDIO OUT CH-1/L(MONITOR)"
CN607	1-565-281-11	o CONNECTOR, XLR 3P, MALE "AUDIO OUT CH-2/R"
D1	8-719-100-03	s DIODE 1S2835
D2	8-719-400-18	s DIODE MA152WK
D3	8-719-104-10	s DIODE 1SS99
D4	8-719-100-05	s DIODE 1S2837
D5	8-719-100-05	s DIODE 1S2837
D6	8-719-105-64	s DIODE RD4.3M-B2
D551	8-719-911-19	s DIODE 1SS119
D552	8-719-911-19	s DIODE 1SS119
D601	8-719-110-17	s DIODE RD10ES-B2
D602	8-719-105-82	s DIODE RD5.1M-B2
D603	8-719-800-76	s DIODE 1SS226
DL1	1-415-404-11	s DELAY LINE 226nS
DL2	1-415-404-11	s DELAY LINE 226nS
FL1	1-235-475-12	s FILTER, LOW-PASS
FL2	1-236-029-12	s FILTER, BANDPASS 4.2MHz
FL3	1-236-040-11	s FILTER, LOW-PASS
IC1	8-759-208-11	s IC TC4053BFHB
IC2	8-759-208-18	s IC TC4528BFHB
IC3	8-752-006-12	s IC CX20061
IC4	8-759-008-82	s IC MC14013BF
IC5	8-759-200-60	s IC TA7060AP

## (CP-135 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
IC6	8-759-100-93	s IC UPC393G2
IC7	8-749-938-90	s IC BX389
IC8	8-752-201-30	s IC CX22013
IC9	8-749-938-90	s IC BX389
IC10	8-752-030-30	s IC CXA1020P
IC11	8-749-938-90	s IC BX389
IC12	8-752-006-12	s IC CX20061
IC501	8-759-700-84	s IC NJM2041M-D
IC502	8-759-700-84	s IC NJM2041M-D
IC503	8-759-700-84	s IC NJM2041M-D
IC504	8-759-700-84	s IC NJM2041M-D
IC601	8-759-700-43	s IC NJM4558M
IC701	8-759-700-94	s IC NJM5532M
IC801	8-759-700-94	s IC NJM5532M
L2	1-410-476-11	s INDUCTOR 33uH
L4	1-410-482-31	s INDUCTOR 100uH
L5	1-410-482-31	s INDUCTOR 100uH
L6	1-410-482-31	s INDUCTOR 100uH
L8	1-410-482-31	s INDUCTOR 100uH
L9	1-410-482-31	s INDUCTOR 100uH
L10	1-410-466-41	s INDUCTOR 4.7uH
L11	1-410-482-31	s INDUCTOR 100uH
L12	1-410-476-11	s INDUCTOR 33uH
L15	1-410-468-11	s INDUCTOR 6.8uH
Q1	8-729-901-01	s TRANSISTOR DTC144EK
Q2	8-729-201-05	s TRANSISTOR 2SC2878-B
Q3	8-729-901-01	s TRANSISTOR DTC144EK
Q4	8-729-901-01	s TRANSISTOR DTC144EK
Q5	8-729-271-22	s TRANSISTOR 2SC2712-G
Q9	8-729-216-22	s TRANSISTOR 2SA1162
Q11	8-729-216-22	s TRANSISTOR 2SA1162
Q12	8-729-901-01	s TRANSISTOR DTC144EK
Q13	8-729-901-01	s TRANSISTOR DTC144EK
Q14	8-729-271-22	s TRANSISTOR 2SC2712-G
Q15	8-729-901-01	s TRANSISTOR DTC144EK
Q16	8-729-100-66	s TRANSISTOR 2SC1623
Q17	8-729-100-66	s TRANSISTOR 2SC1623
Q18	8-729-100-66	s TRANSISTOR 2SC1623
Q19	8-729-100-66	s TRANSISTOR 2SC1623
Q20	8-729-175-73	s TRANSISTOR 2SC2757
Q21	8-729-100-66	s TRANSISTOR 2SC1623
Q22	8-729-175-73	s TRANSISTOR 2SC2757
Q23	8-729-122-63	s TRANSISTOR 2SA1226
Q24	8-729-122-63	s TRANSISTOR 2SA1226
Q25	8-729-175-73	s TRANSISTOR 2SC2757
Q26	8-729-100-66	s TRANSISTOR 2SC1623
Q27	8-729-122-63	s TRANSISTOR 2SA1226
Q28	8-729-100-66	s TRANSISTOR 2SC1623
Q29	8-729-122-63	s TRANSISTOR 2SA1226
Q30	8-729-175-73	s TRANSISTOR 2SC2757
Q31	8-729-175-73	s TRANSISTOR 2SC2757
Q32	8-729-122-63	s TRANSISTOR 2SA1226
Q33	8-729-122-63	s TRANSISTOR 2SA1226
Q34	8-729-901-01	s TRANSISTOR DTC144EK
Q35	8-729-901-01	s TRANSISTOR DTC144EK
Q36	8-729-271-22	s TRANSISTOR 2SC2712-G
Q37	8-729-271-22	s TRANSISTOR 2SC2712-G
Q38	8-729-271-22	s TRANSISTOR 2SC2712-G
Q39	8-729-271-22	s TRANSISTOR 2SC2712-G

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

## (CP-135 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
Q40	8-729-271-22	s TRANSISTOR 2SC2712-G
Q41	8-729-271-22	s TRANSISTOR 2SC2712-G
Q42	8-729-216-22	s TRANSISTOR 2SA1162
Q43	8-729-216-22	s TRANSISTOR 2SA1162
Q45	8-729-271-22	s TRANSISTOR 2SC2712-G
Q501	8-729-202-38	s TRANSISTOR 2SC3326N
Q601	8-729-271-22	s TRANSISTOR 2SC2712-G
Q602	8-729-216-22	s TRANSISTOR 2SA1162
Q603	8-729-378-84	s TRANSISTOR 2SD788
Q604	8-729-202-38	s TRANSISTOR 2SC3326N
Q605	8-729-202-38	s TRANSISTOR 2SC3326N
Q651	8-729-271-22	s TRANSISTOR 2SC2712-G
Q701	8-729-202-38	s TRANSISTOR 2SC3326N
Q702	8-729-202-38	s TRANSISTOR 2SC3326N
Q801	8-729-202-38	s TRANSISTOR 2SC3326N
Q802	8-729-202-38	s TRANSISTOR 2SC3326N
R9	1-215-442-00	s METAL 7.5K 1% 1/6W
R12	1-215-442-00	s METAL 7.5K 1% 1/6W
R26	1-215-400-00	s METAL 130 1% 1/6W
R27	1-215-416-00	s METAL 620 1% 1/6W
R33	1-216-686-11	s METAL, CHIP 30K 0.5% 1/10W
R70	1-215-417-00	s METAL 680 1% 1/6W
R78	1-215-405-00	s METAL 220 1% 1/6W
R81	1-215-405-00	s METAL 220 1% 1/6W
R88	1-215-405-00	s METAL 220 1% 1/6W
R91	1-215-405-00	s METAL 220 1% 1/6W
R133	1-215-416-00	s METAL 620 1% 1/6W
R137	1-215-443-00	s METAL 8.2K 1% 1/6W
R139	1-215-413-00	s METAL 470 1% 1/6W
R142	1-215-419-00	s METAL 820 1% 1/6W
R143	1-216-653-11	s METAL, CHIP 1.2K 0.5% 1/10W
R149	1-215-419-00	s METAL 820 1% 1/6W
R150	1-216-635-11	s METAL, CHIP 220 0.5% 1/10W
R164	1-215-392-00	s METAL 62 1% 1/6W
R504	1-216-627-11	s METAL, CHIP 100 0.5% 1/10W
R505	1-216-627-11	s METAL, CHIP 100 0.5% 1/10W
R511	1-216-657-11	s METAL, CHIP 1.8K 0.5% 1/10W
R512	1-216-657-11	s METAL, CHIP 1.8K 0.5% 1/10W
R513	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W
R514	1-216-641-11	s METAL, CHIP 390 0.5% 1/10W
R515	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W
R517	1-216-699-11	s METAL, CHIP 100K 0.5% 1/10W
R518	1-216-699-11	s METAL, CHIP 100K 0.5% 1/10W
R519	1-216-633-11	s METAL, CHIP 180 0.5% 1/10W
R521	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W
R522	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W
R523	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W
R524	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W
R525	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W
R526	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W
R527	1-216-647-11	s METAL, CHIP 680 0.5% 1/10W
R531	1-216-657-11	s METAL, CHIP 1.8K 0.5% 1/10W
R532	1-216-657-11	s METAL, CHIP 1.8K 0.5% 1/10W
R533	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W
R534	1-216-641-11	s METAL, CHIP 390 0.5% 1/10W
R535	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W

## (CP-135 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R537	1-216-699-11	s METAL, CHIP 100K 0.5% 1/10W
R538	1-216-699-11	s METAL, CHIP 100K 0.5% 1/10W
R539	1-216-633-11	s METAL, CHIP 180 0.5% 1/10W
R541	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W
R542	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W
R543	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W
R544	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W
R545	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W
R546	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W
R547	1-216-647-11	s METAL, CHIP 680 0.5% 1/10W
R606	1-216-688-11	s METAL, CHIP 36K 0.5% 1/10W
R619	1-216-015-00	s METAL 39 5% 1/10W
R703	1-216-668-11	s METAL, CHIP 5.1K 0.5% 1/10W
R704	1-216-679-11	s METAL, CHIP 15K 0.5% 1/10W
R705	1-216-668-11	s METAL, CHIP 5.1K 0.5% 1/10W
R706	1-216-631-11	s METAL, CHIP 150 0.5% 1/10W
R707	1-216-679-11	s METAL, CHIP 15K 0.5% 1/10W
R713	1-216-668-11	s METAL, CHIP 5.1K 0.5% 1/10W
R714	1-216-679-11	s METAL, CHIP 15K 0.5% 1/10W
R715	1-216-668-11	s METAL, CHIP 5.1K 0.5% 1/10W
R716	1-216-640-11	s METAL, CHIP 360 0.5% 1/10W
R717	1-216-679-11	s METAL, CHIP 15K 0.5% 1/10W
R803	1-216-668-11	s METAL, CHIP 5.1K 0.5% 1/10W
R804	1-216-679-11	s METAL, CHIP 15K 0.5% 1/10W
R805	1-216-668-11	s METAL, CHIP 5.1K 0.5% 1/10W
R806	1-216-631-11	s METAL, CHIP 150 0.5% 1/10W
R807	1-216-679-11	s METAL, CHIP 15K 0.5% 1/10W
R813	1-216-668-11	s METAL, CHIP 5.1K 0.5% 1/10W
R814	1-216-679-11	s METAL, CHIP 15K 0.5% 1/10W
R815	1-216-668-11	s METAL, CHIP 5.1K 0.5% 1/10W
R816	1-216-640-11	s METAL, CHIP 360 0.5% 1/10W
R817	1-216-679-11	s METAL, CHIP 15K 0.5% 1/10W
RV2	1-230-521-11	s RES, ADJ, METAL 2.2K
RV3	1-230-520-11	s RES, ADJ, METAL 1K
RV4	1-230-523-11	s RES, ADJ, METAL 10K
RV5	1-230-519-11	s RES, ADJ, METAL 470
RV6	1-230-519-11	s RES, ADJ, METAL 470
RV7	1-230-519-11	s RES, ADJ, METAL 470
RV8	1-230-520-11	s RES, ADJ, METAL 1K
RV9	1-230-519-11	s RES, ADJ, METAL 470
S1	1-553-510-00	s SWITCH, SLIDE
S301	1-570-845-11	s SWITCH, SLIDE
S302	1-570-845-11	s SWITCH, SLIDE
S303	1-570-845-11	s SWITCH, SLIDE
S501	1-554-673-00	s SWITCH, SLIDE
S502	1-554-673-00	s SWITCH, SLIDE
S503	1-570-845-11	s SWITCH, SLIDE
S504	1-570-845-11	s SWITCH, SLIDE
S601	1-570-835-11	s SWITCH, SLIDE
TM1	1-548-119-21	s HOURS METER

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

CR-35 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	A-6727-052-A	o MOUNTED CIRCUIT BOARD, CR-35
	3-621-124-00	s SPACER
C2	1-130-471-00	s MYLAR 0.001uF 5% 50V
C6	1-107-208-00	s MICA 18PF 5% 500V
C7	1-126-160-11	s ELECT 1uF 20% 50V
C10	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C14	1-126-154-11	s ELECT 47uF 20% 6.3V
C20	1-126-101-11	s ELECT 100uF 20% 16V
C22	1-124-589-11	s ELECT 47uF 20% 16V
C24	1-124-589-11	s ELECT 47uF 20% 16V
C26	1-124-589-11	s ELECT 47uF 20% 16V
C28	1-124-589-11	s ELECT 47uF 20% 16V
C30	1-124-589-11	s ELECT 47uF 20% 16V
C32	1-124-120-11	s ELECT 220uF 20% 25V
C34	1-124-589-11	s ELECT 47uF 20% 16V
C35	1-131-349-00	s TANTALUM 2.2uF 10% 35V
C36	1-130-483-00	s MYLAR 0.01uF 5% 50V
C37	1-124-234-00	s ELECT 22uF 20% 16V
C38	1-131-350-00	s TANTALUM 3.3uF 10% 35V
C39	1-124-234-00	s ELECT 22uF 20% 16V
C40	1-131-350-00	s TANTALUM 3.3uF 10% 35V
C43	1-109-542-00	s MICA 220PF 5% 100V
C44	1-101-886-00	s CERAMIC 62PF 5% 50V
C47	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C51	1-126-160-11	s ELECT 1uF 20% 50V
C52	1-130-475-00	s MYLAR 0.0022uF 5% 50V
C53	1-130-478-00	s MYLAR 0.0039uF 5% 50V
C54	1-131-343-00	s TANTALUM 0.22uF 10% 35V
C55	1-130-483-00	s MYLAR 0.01uF 5% 50V
C56	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C57	1-131-363-00	s TANTALUM 4.7uF 10% 20V
C59	1-126-157-11	s ELECT 10uF 20% 16V
C61	1-131-344-00	s TANTALUM 0.33uF 10% 35V
C62	1-130-478-00	s MYLAR 0.0039uF 5% 50V
C63	1-130-479-00	s MYLAR 0.0047uF 5% 50V
C64	1-130-481-00	s MYLAR 0.0068uF 5% 50V
C65	1-124-120-11	s ELECT 220uF 20% 25V
C66	1-130-481-00	s MYLAR 0.0068uF 5% 50V
C67	1-130-471-00	s MYLAR 0.001uF 5% 50V
C68	1-124-589-11	s ELECT 47uF 20% 16V
C69	1-131-344-00	s TANTALUM 0.33uF 10% 35V
C71	1-126-163-11	s ELECT 4.7uF 20% 50V
C72	1-107-044-00	s MICA 3.3PF 500V
C77	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C81	1-124-589-11	s ELECT 47uF 20% 16V
C83	1-124-589-11	s ELECT 47uF 20% 16V
CN701	1-566-282-11	o CONNECTOR, 20P, MALE
D1	8-719-100-05	s DIODE 1S2837
D2	8-719-911-19	s DIODE 1SS119
D3	8-719-911-19	s DIODE 1SS119
D4	8-719-915-43	s DIODE, VARICAP FC54M
D5	8-719-100-05	s DIODE 1S2837
D6	8-719-101-97	s DIODE 1SS97-1
D7	8-719-101-97	s DIODE 1SS97-1
D8	8-719-800-76	s DIODE 1SS226
D9	8-719-815-59	s DIODE 1S1555-S
D10	8-719-100-05	s DIODE 1S2837

(CR-35 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
FL1	1-236-029-12	s FILTER, BANDPASS 4.2MHZ
FL2	1-235-471-11	s FILTER, LOW-PASS
FL3	1-231-377-21	s FILTER, BANDPASS 5.4MHZ
IC1	8-759-908-59	s IC CX859
IC2	8-750-000-46	s IC CX872
IC3	8-741-126-40	s IC BX1264
IC4	8-741-126-20	s IC BX1262
IC5	8-752-006-12	s IC CX20061
IC6	8-759-208-10	s IC TC4053BPHB
L1	1-410-494-11	s INDUCTOR 1mH
L5	1-410-482-31	s INDUCTOR 100uH
L6	1-410-482-31	s INDUCTOR 100uH
L7	1-410-482-31	s INDUCTOR 100uH
L8	1-410-482-31	s INDUCTOR 100uH
L9	1-410-482-31	s INDUCTOR 100uH
L10	1-410-482-31	s INDUCTOR 100uH
L11	1-410-482-31	s INDUCTOR 100uH
L13	1-408-072-00	s INDUCTOR 47uH
L15	1-410-489-11	s INDUCTOR 390uH
L16	1-410-482-31	s INDUCTOR 100uH
L17	1-410-482-31	s INDUCTOR 100uH
LV1	1-407-572-00	s COIL, VAR 33uH
Q2	8-729-271-22	s TRANSISTOR 2SC2712-G
Q3	8-729-271-22	s TRANSISTOR 2SC2712-G
Q4	8-729-216-22	s TRANSISTOR 2SA1162
Q5	8-729-271-22	s TRANSISTOR 2SC2712-G
Q8	8-729-216-22	s TRANSISTOR 2SA1162
Q9	8-729-202-38	s TRANSISTOR 2SC3326N
Q10	8-729-202-38	s TRANSISTOR 2SC3326N
Q11	8-729-271-22	s TRANSISTOR 2SC2712-G
Q12	8-729-100-66	s TRANSISTOR 2SC1623
Q13	8-729-901-01	s TRANSISTOR DTC144EK
Q14	8-729-271-22	s TRANSISTOR 2SC2712-G
Q15	8-729-216-22	s TRANSISTOR 2SA1162
Q16	8-729-202-38	s TRANSISTOR 2SC3326N
Q17	8-729-271-22	s TRANSISTOR 2SC2712-G
Q18	8-729-271-22	s TRANSISTOR 2SC2712-G
R1	1-216-639-11	s METAL, CHIP 330 0.5% 1/10W
R3	1-216-651-11	s METAL, CHIP 1K 0.5% 1/10W
R7	1-216-657-11	s METAL, CHIP 1.8K 0.5% 1/10W
R12	1-216-644-11	s METAL, CHIP 510 0.5% 1/10W
R13	1-216-644-11	s METAL, CHIP 510 0.5% 1/10W
R19	1-216-651-11	s METAL, CHIP 1K 0.5% 1/10W
R20	1-216-651-11	s METAL, CHIP 1K 0.5% 1/10W
R32	1-216-696-11	s METAL, CHIP 75K 0.5% 1/10W
R86	1-216-748-11	s METAL, CHIP 39K 1% 1/10W
R98	1-216-666-11	s METAL, CHIP 4.3K 0.5% 1/10W
RV1	1-230-524-11	s RES, ADJ, METAL 22K
RV2	1-230-520-11	s RES, ADJ, METAL 1K
RV3	1-230-522-11	s RES, ADJ, METAL 4.7K
RV4	1-230-526-11	s RES, ADJ, METAL 47K
RV5	1-230-521-11	s RES, ADJ, METAL 2.2K
RV6	1-230-522-11	s RES, ADJ, METAL 4.7K
RV7	1-230-523-11	s RES, ADJ, METAL 10K
RV8	1-230-523-11	s RES, ADJ, METAL 10K
RV9	1-230-524-11	s RES, ADJ, METAL 22K
RV10	1-230-523-11	s RES, ADJ, METAL 10K

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

(CR-35 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
RV11	1-230-524-11	s RES, ADJ, METAL 22K
RV12	1-230-522-11	s RES, ADJ, METAL 4.7K
RV13	1-230-520-11	s RES, ADJ, METAL 1K
T1	1-425-880-21	s TRANSFORMER, BURST AMP
X1	1-527-231-00	s CRYSTAL 4.433618MHz

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DU-58 BOARD  
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Ref. No. or Q'ty	Part No.	SP Description
	1-611-954-11	o PRINTED CIRCUIT BOARD, DU-58

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DUS-4 BOARD  
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Ref. No. or Q'ty	Part No.	SP Description
	1-611-963-11	o PRINTED CIRCUIT BOARD, DUS-4
S1	1-570-816-11	s SWITCH, REED

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DUS-262 BOARD  
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Ref. No. or Q'ty	Part No.	SP Description
All of the component parts on this board are supplied together when you order the VA-76 board.		
	1-629-228-11	o PRINTED CIRCUIT BOARD, DUS-262
CN561	1-563-693-11	o CONNECTOR, 20P, FEMALE

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HN-102 BOARD  
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Ref. No. or Q'ty	Part No.	SP Description
	A-6725-667-A	o MOUNTED CIRCUIT BOARD, HN-102
CN801	1-563-017-11	o CONNECTOR, FPC 30P, MALE
CN807	1-506-482-11	s CONNECTOR, 3P, MALE
CN808	1-506-482-11	s CONNECTOR, 3P, MALE
CN809	1-506-482-11	s CONNECTOR, 3P, MALE
CN810	1-506-482-11	s CONNECTOR, 3P, MALE
CN811	1-506-482-11	s CONNECTOR, 3P, MALE
CN812	1-506-482-11	s CONNECTOR, 3P, MALE
CN813	1-506-482-11	s CONNECTOR, 3P, MALE
CN814	1-506-482-11	s CONNECTOR, 3P, MALE
CN815	1-506-482-11	s CONNECTOR, 3P, MALE
CN816	1-506-482-11	s CONNECTOR, 3P, MALE
CN817	1-506-482-11	s CONNECTOR, 3P, MALE
CN818	1-506-482-11	s CONNECTOR, 3P, MALE
CN819	1-506-482-11	s CONNECTOR, 3P, MALE
CN820	1-506-482-11	s CONNECTOR, 3P, MALE
CN821	1-506-482-11	s CONNECTOR, 3P, MALE

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HP-45 BOARD  
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Ref. No. or Q'ty	Part No.	SP Description
All of the component parts on this board are supplied together when you order the VA-76 board.		
	1-629-242-12	o PRINTED CIRCUIT BOARD, HP-45
J601	1-507-863-51	s JACK, PHONE
RV651	1-237-790-21	s RES, VAR CARBON 10K



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KY-147 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	A-6717-527-A	o MOUNTED CIRCUIT BOARD, KY-147
	3-719-182-11	o HOLDER, LCD
	3-731-607-01	o HOLDER (S), LED
	3-731-608-01	o HOLDER (2X5), LED
	3-731-609-01	o HOLDER (L), LED
C1	1-126-153-11	s ELECT 22uF 20% 6.3V
C3	1-126-096-11	s ELECT 10uF 20% 35V
C4	1-126-153-11	s ELECT 22uF 20% 6.3V
C17	1-124-589-11	s ELECT 47uF 20% 16V
CN302	1-506-482-11	s CONNECTOR, 3P, MALE
D2	8-719-945-13	s DIODE SLH-34YC3F
D3	8-719-945-13	s DIODE SLH-34YC3F
D4	8-719-945-13	s DIODE SLH-34YC3F
D5	8-719-945-13	s DIODE SLH-34YC3F
D6	8-719-902-27	s LED EBR3402S, RED
D7	8-719-915-45	s DIODE SLP162B
D8	8-719-915-45	s DIODE SLP162B
D9	8-719-902-27	s LED EBR3402S, RED
D10	8-719-915-45	s DIODE SLP162B
D11	8-719-902-27	s LED EBR3402S, RED
D12	8-719-955-05	s DIODE BR5505S
D13	8-719-100-03	s DIODE 1S2835
IC1	8-759-982-98	s IC MB88544-168M
IC2	8-759-913-99	s IC MB88201-173N
IC3	1-808-016-11	s ARRAY, LED
LCD1	1-807-981-11	s LCD
ME1001	1-520-495-11	s METER, LEVEL
ME1002	1-520-495-31	s METER, LEVEL
Q1	8-729-308-92	s TRANSISTOR 2SD789-03B
Q2	8-729-901-01	s TRANSISTOR DTC144EK
Q3	8-729-900-52	s TRANSISTOR DTC114YK
Q4	8-729-900-52	s TRANSISTOR DTC114YK
Q5	8-729-900-52	s TRANSISTOR DTC114YK
Q6	8-729-900-52	s TRANSISTOR DTC114YK
Q7	8-729-900-52	s TRANSISTOR DTC114YK
Q8	8-729-900-52	s TRANSISTOR DTC114YK
Q9	8-729-900-52	s TRANSISTOR DTC114YK
Q10	8-729-100-66	s TRANSISTOR 2SC1623
Q11	8-729-100-66	s TRANSISTOR 2SC1623
Q12	8-729-216-22	s TRANSISTOR 2SA1162
Q13	8-729-901-01	s TRANSISTOR DTC144EK
Q14	8-729-901-01	s TRANSISTOR DTC144EK
Q15	8-729-901-01	s TRANSISTOR DTC144EK
S1	1-572-399-21	o SWITCH, TACTILE
S2	1-572-399-21	o SWITCH, TACTILE
S3	1-553-739-21	s SWITCH, TACTILE
S4	1-553-739-21	s SWITCH, TACTILE
S5	1-572-399-21	o SWITCH, TACTILE
S6	1-553-739-21	s SWITCH, TACTILE
S7	1-553-739-21	s SWITCH, TACTILE
S8	1-554-303-21	s SWITCH, TACTILE
S9	1-570-845-11	s SWITCH, SLIDE
S10	1-570-845-11	s SWITCH, SLIDE
S11	1-554-303-21	s SWITCH, TACTILE
S12	1-554-303-21	s SWITCH, TACTILE

(KY-147 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
X1	1-567-143-00	s RESONATOR, CERAMIC 6.00MHz
X2	1-567-192-11	s RESONATOR, CERAMIC 4.00MHz

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LED-69 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-629-236-11	o PRINTED CIRCUIT BOARD, LED-69
D1	8-719-912-39	s DIODE SLR-932A

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LED-70 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-629-237-11	o PRINTED CIRCUIT BOARD, LED-70
D1	8-719-912-39	s DIODE SLR-932A

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PC-22 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-611-960-11	o PRINTED CIRCUIT BOARD, PC-22
R1	1-249-417-11	s CARBON 1K 5% 1/4W
IC1	8-719-800-81	s PHOTOINTERRUPTER TLP801A

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

PD-44 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	△ A-6717-529-A	o COMPLETE PCB, PD-44
C1	1-131-347-00	s TANTALUM 1uF 10% 35V
C2	1-131-347-00	s TANTALUM 1uF 10% 35V
C3	1-124-556-11	s ELECT 220uF 20% 16V
C4	1-124-589-11	s ELECT 47uF 20% 16V
C5	1-131-347-00	s TANTALUM 1uF 10% 35V
C6	1-131-347-00	s TANTALUM 1uF 10% 35V
C7	1-124-556-11	s ELECT 220uF 20% 16V
C8	1-131-347-00	s TANTALUM 1uF 10% 35V
C9	1-131-347-00	s TANTALUM 1uF 10% 35V
C11	1-131-347-00	s TANTALUM 1uF 10% 35V
C12	1-131-347-00	s TANTALUM 1uF 10% 35V
C13	1-124-556-11	s ELECT 220uF 20% 16V
C14	1-131-356-00	s TANTALUM 3.3uF 10% 25V
C15	1-124-589-11	s ELECT 47uF 20% 16V
C16	1-131-347-00	s TANTALUM 1uF 10% 35V
C17	1-131-347-00	s TANTALUM 1uF 10% 35V
C18	1-131-347-00	s TANTALUM 1uF 10% 35V
C19	1-131-347-00	s TANTALUM 1uF 10% 35V
C20	1-161-494-00	s CERAMIC 0.022uF 25V
C21	1-161-494-00	s CERAMIC 0.022uF 25V
CN1	1-506-484-11	s CONNECTOR, 5P, MALE
CN2	1-506-484-11	s CONNECTOR, 5P, MALE
CN3	1-506-484-11	s CONNECTOR, 5P, MALE
CN4	1-506-482-11	s CONNECTOR, 3P, MALE
CN5	1-506-482-11	s CONNECTOR, 3P, MALE
CN6	1-506-482-11	s CONNECTOR, 3P, MALE
CN7	1-506-482-11	s CONNECTOR, 3P, MALE
CN8	1-506-483-21	o CONNECTOR, 4P, MALE
D1	8-719-911-19	s DIODE 1SS119
D2	8-719-911-19	s DIODE 1SS119
D3	8-719-908-06	s DIODE ERA81-005
D4	8-719-200-02	s DIODE 10E2
D5	8-719-160-69	s DIODE RD18F-B3
D6	8-719-911-19	s DIODE 1SS119
D7	8-719-911-19	s DIODE 1SS119
D8	8-719-908-06	s DIODE ERA81-005
D9	8-719-200-02	s DIODE 10E2
D10	8-719-160-69	s DIODE RD18F-B3
D11	8-719-911-19	s DIODE 1SS119
D12	8-719-911-19	s DIODE 1SS119
D13	8-719-200-02	s DIODE 10E2
D14	8-719-160-69	s DIODE RD18F-B3
D15	8-719-911-19	s DIODE 1SS119
D16	8-719-911-19	s DIODE 1SS119
D17	8-719-908-06	s DIODE ERA81-005
D18	8-719-200-02	s DIODE 10E2
D19	8-719-160-69	s DIODE RD18F-B3
D20	8-719-911-19	s DIODE 1SS119
D21	8-719-911-19	s DIODE 1SS119
D22	8-719-911-19	s DIODE 1SS119
D23	8-719-200-02	s DIODE 10E2
D24	8-719-160-69	s DIODE RD18F-B3
D25	8-719-911-19	s DIODE 1SS119
D26	8-719-911-19	s DIODE 1SS119
D27	8-719-200-02	s DIODE 10E2
D28	8-719-160-69	s DIODE RD18F-B3

(PD-44 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
IC1	8-759-240-49	s IC TC4049BP
IC2	8-759-904-25	s IC SN74ALS05AN
IC3	8-759-904-25	s IC SN74ALS05AN
PS4	△ 1-532-686-00	s LINK, IC 2.7A
PS5	△ 1-532-686-00	s LINK, IC 2.7A
Q1	8-729-900-89	s TRANSISTOR DTC144ES
Q2	8-729-900-89	s TRANSISTOR DTC144ES
Q3	8-729-900-65	s TRANSISTOR DTA144ES
Q4	8-729-200-46	s TRANSISTOR 2SD1160
Q5	8-729-900-65	s TRANSISTOR DTA144ES
Q6	8-729-200-46	s TRANSISTOR 2SD1160
Q7	8-729-900-89	s TRANSISTOR DTC144ES
Q8	8-729-900-89	s TRANSISTOR DTC144ES
Q9	8-729-900-65	s TRANSISTOR DTA144ES
Q10	8-729-200-46	s TRANSISTOR 2SD1160
Q11	8-729-900-65	s TRANSISTOR DTA144ES
Q12	8-729-200-46	s TRANSISTOR 2SD1160
Q13	8-729-900-65	s TRANSISTOR DTA144ES
Q14	8-729-200-46	s TRANSISTOR 2SD1160
Q15	8-729-900-65	s TRANSISTOR DTA144ES
Q16	8-729-200-46	s TRANSISTOR 2SD1160
Q17	8-729-900-89	s TRANSISTOR DTC144ES
Q18	8-729-900-89	s TRANSISTOR DTC144ES
Q19	8-729-900-65	s TRANSISTOR DTA144ES
Q20	8-729-200-46	s TRANSISTOR 2SD1160
Q21	8-729-900-65	s TRANSISTOR DTA144ES
Q22	8-729-200-46	s TRANSISTOR 2SD1160
Q23	8-729-173-38	s TRANSISTOR 2SA733-K
Q24	8-729-900-65	s TRANSISTOR DTA144ES
Q25	8-729-200-46	s TRANSISTOR 2SD1160
Q26	8-729-900-65	s TRANSISTOR DTA144ES
Q27	8-729-200-46	s TRANSISTOR 2SD1160
Q28	8-729-900-65	s TRANSISTOR DTA144ES
Q29	8-729-200-46	s TRANSISTOR 2SD1160
Q30	8-729-900-65	s TRANSISTOR DTA144ES
Q31	8-729-200-46	s TRANSISTOR 2SD1160
Q32	8-729-900-65	s TRANSISTOR DTA144ES
Q33	8-729-900-89	s TRANSISTOR DTC144ES

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

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RP-38A BOARD  
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Ref. No. or Q'ty	Part No.	SP Description
	A-6727-053-A	o MOUNTED CIRCUIT BOARD, RP-38A
	3-621-124-00	s SPACER
C202	1-124-589-11	s ELECT 47uF 20% 16V
C206	1-124-234-00	s ELECT 22uF 20% 16V
C207	1-124-234-00	s ELECT 22uF 20% 16V
C210	1-126-160-11	s ELECT 1uF 20% 50V
C211	1-124-589-11	s ELECT 47uF 20% 16V
C213	1-126-160-11	s ELECT 1uF 20% 50V
C215	1-124-589-11	s ELECT 47uF 20% 16V
CN702	1-506-473-11	o CONNECTOR, 8P, MALE
CN703	1-506-471-11	o CONNECTOR, 6P, MALE
CN704	1-506-473-11	s CONNECTOR, 8P, MALE
COP201	1-561-724-00	o PLUG, SHORTING
COP202	1-561-724-00	o PLUG, SHORTING
COR201	1-560-914-00	s PIN, SHORTING
COR202	1-560-914-00	s PIN, SHORTING
D201	8-719-911-19	s DIODE 1SS119
D202	8-719-100-03	s DIODE 1S2835
IC201	8-743-731-00	s IC BX373A
IC202	8-743-740-00	s IC BX374
IC203	8-741-126-50	s IC BX1265
IC204	8-741-126-50	s IC BX1265
L201	1-410-482-31	s INDUCTOR 100uH
L202	1-410-482-31	s INDUCTOR 100uH
L204	1-410-482-31	s INDUCTOR 100uH
L205	1-410-482-31	s INDUCTOR 100uH
Q201	8-729-201-05	s TRANSISTOR 2SC2878-B
Q202	8-729-201-05	s TRANSISTOR 2SC2878-B
Q203	8-729-901-06	s TRANSISTOR DTA144EK
Q204	8-729-901-06	s TRANSISTOR DTA144EK
Q205	8-729-271-22	s TRANSISTOR 2SC2712-G
Q206	8-729-271-22	s TRANSISTOR 2SC2712-G
R202	1-215-416-00	s METAL 620 1% 1/6W
R203	1-215-405-00	s METAL 220 1% 1/6W
RV201	1-230-521-11	s RES, ADJ, METAL 2.2K
RV202	1-230-521-11	s RES, ADJ, METAL 2.2K
RV203	1-230-522-11	s RES, ADJ, METAL 4.7K
RV204	1-230-522-11	s RES, ADJ, METAL 4.7K
RV205	1-230-521-11	s RES, ADJ, METAL 2.2K
RV206	1-230-521-11	s RES, ADJ, METAL 2.2K
T201	1-426-017-00	s TRANSFORMER, AF
T202	1-426-172-11	s TRANSFORMER, HF
T203	1-426-172-11	s TRANSFORMER, HF
T204	1-426-319-11	s TRANSFORMER, PB RF
T205	1-426-320-11	s TRANSFORMER, PB RF

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SE-99 BOARD  
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Ref. No. or Q'ty	Part No.	SP Description
	1-629-238-11	o PRINTED CIRCUIT BOARD, SE-99
D1	8-719-118-33	s PHOTODIODE PH302D

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SE-118 BOARD  
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Ref. No. or Q'ty	Part No.	SP Description
	1-629-239-11	o PRINTED CIRCUIT BOARD, SE-118
D1	8-719-118-33	s PHOTODIODE PH302D

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

## SV-108A BOARD

Ref. No. or Q'ty	Part No.	SP Description
	△ A-6715-421-B	o MOUNTED CIRCUIT BOARD, SV-108A
	3-621-124-00	s SPACER
C1	1-130-487-00	s MYLAR 0.022uF 5% 50V
C2	1-124-465-00	s ELECT 0.47uF 20% 50V
C3	1-130-487-00	s MYLAR 0.022uF 5% 50V
C4	1-124-465-00	s ELECT 0.47uF 20% 50V
C5	1-130-487-00	s MYLAR 0.022uF 5% 50V
C6	1-124-465-00	s ELECT 0.47uF 20% 50V
C7	1-124-257-00	s ELECT 2.2uF 20% 50V
C8	1-130-481-00	s MYLAR 0.0068uF 5% 50V
C10	1-124-261-00	s ELECT 10uF 20% 50V
C11	1-130-485-00	s MYLAR 0.015uF 5% 50V
C12	1-124-472-11	s ELECT 470uF 20% 10V
C13	1-124-225-00	s ELECT 100uF 20% 6.3V
C14	1-124-225-00	s ELECT 100uF 20% 6.3V
C15	1-124-225-00	s ELECT 100uF 20% 6.3V
C16	1-130-483-00	s MYLAR 0.01uF 5% 50V
C17	1-130-483-00	s MYLAR 0.01uF 5% 50V
C18	1-131-341-00	s TANTALUM 0.1uF 10% 35V
C21	1-163-015-00	s CERAMIC, CHIP 0.0033uF 5% 50V
C22	1-124-589-11	s ELECT 47uF 20% 16V
C24	1-124-248-00	s ELECT 22uF 20% 35V
C25	1-124-465-00	s ELECT 0.47uF 20% 50V
C27	1-124-261-00	s ELECT 10uF 20% 50V
C28	1-124-261-00	s ELECT 10uF 20% 50V
C29	1-126-160-11	s ELECT 1uF 20% 50V
C30	1-124-261-00	s ELECT 10uF 20% 50V
C31	1-126-160-11	s ELECT 1uF 20% 50V
C33	1-126-160-11	s ELECT 1uF 20% 50V
C35	1-131-343-00	s TANTALUM 0.22uF 10% 35V
C36	1-162-798-11	s CERAMIC 0.022uF 10% 50V
C37	1-124-589-11	s ELECT 47uF 20% 16V
C39	1-124-589-11	s ELECT 47uF 20% 16V
C42	1-124-261-00	s ELECT 10uF 20% 50V
C46	1-124-261-00	s ELECT 10uF 20% 50V
C48	1-164-161-11	s CERAMIC, CHIP 0.0022uF 10% 100V
C49	1-163-023-00	s CERAMIC, CHIP 0.015uF 5% 50V
C50	1-124-261-00	s ELECT 10uF 20% 50V
C51	1-124-261-00	s ELECT 10uF 20% 50V
C63	1-126-160-11	s ELECT 1uF 20% 50V
C64	1-126-160-11	s ELECT 1uF 20% 50V
C68	1-124-589-11	s ELECT 47uF 20% 16V
C73	1-130-496-00	s MYLAR 0.12uF 5% 50V
C74	1-130-490-11	s MYLAR 0.039uF 5% 50V
C75	1-130-491-00	s MYLAR 0.047uF 5% 50V
C77	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C78	1-130-484-00	s MYLAR 0.012uF 5% 50V
C79	1-126-160-11	s ELECT 1uF 20% 50V
C80	1-126-163-11	s ELECT 4.7uF 20% 50V
C81	1-164-161-11	s CERAMIC, CHIP 0.0022uF 10% 100V
C82	1-130-486-00	s MYLAR 0.018uF 10% 50V
C84	1-130-486-00	s MYLAR 0.018uF 10% 50V
C87	1-124-120-11	s ELECT 220uF 20% 25V
C90	1-124-120-11	s ELECT 220uF 20% 25V
C91	1-124-120-11	s ELECT 220uF 20% 25V
C92	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C93	1-124-261-00	s ELECT 10uF 20% 50V
C95	1-124-261-00	s ELECT 10uF 20% 50V

## (SV-108A BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C97	1-124-261-00	s ELECT 10uF 20% 50V
C98	1-124-910-11	s ELECT 47uF 20% 50V
C99	1-124-910-11	s ELECT 47uF 20% 50V
C102	1-130-491-00	s MYLAR 0.047uF 5% 50V
C103	1-130-492-11	s MYLAR 0.056uF 5% 50V
C104	1-164-161-11	s CERAMIC, CHIP 0.0022uF 10% 100V
C105	1-124-463-00	s ELECT 0.1uF 20% 50V
C109	1-124-120-11	s ELECT 220uF 20% 25V
C111	1-124-261-00	s ELECT 10uF 20% 50V
C112	1-124-257-00	s ELECT 2.2uF 20% 50V
C113	1-130-477-00	s MYLAR 0.0033uF 5% 50V
C114	1-124-257-00	s ELECT 2.2uF 20% 50V
C115	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C116	1-124-248-00	s ELECT 22uF 20% 35V
C119	1-130-479-00	s MYLAR 0.0047uF 5% 50V
C120	1-124-465-00	s ELECT 0.47uF 20% 50V
C121	1-124-465-00	s ELECT 0.47uF 20% 50V
C122	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C123	1-124-248-00	s ELECT 22uF 20% 35V
C125	1-124-120-11	s ELECT 220uF 20% 25V
C149	1-126-103-11	s ELECT 470uF 20% 16V
CN201	1-563-234-11	o CONNECTOR, FPC 23P, MALE
CN202	1-563-234-11	o CONNECTOR, FPC 23P, MALE
CN204	1-506-473-11	s CONNECTOR, 8P, MALE
CN205	1-506-468-11	s CONNECTOR, 3P, MALE
CN206	1-506-471-11	s CONNECTOR, 6P, MALE
CN207	1-506-468-11	s CONNECTOR, 3P, MALE
CN208	1-506-473-11	s CONNECTOR, 8P, MALE
CN209	1-506-468-11	s CONNECTOR, 3P, MALE
CN210	1-506-468-11	s CONNECTOR, 3P, MALE
CN211	1-506-468-11	s CONNECTOR, 3P, MALE
D1	8-719-911-19	s DIODE 1SS119
D2	8-719-100-05	s DIODE 1S2837
D3	8-719-911-19	s DIODE 1SS119
D4	8-719-109-89	s DIODE RD5.6ES-B2
D5	8-719-911-19	s DIODE 1SS119
D6	8-719-911-19	s DIODE 1SS119
D7	8-719-101-76	s DIODE RD10EL-2
D8	8-719-100-05	s DIODE 1S2837
D9	8-719-100-03	s DIODE 1S2835
D10	8-719-911-19	s DIODE 1SS119
D11	8-719-911-19	s DIODE 1SS119
D12	8-719-100-03	s DIODE 1S2835
D13	8-719-911-19	s DIODE 1SS119
D14	8-719-100-03	s DIODE 1S2835
D15	8-719-800-76	s DIODE 1SS226
D16	8-719-800-76	s DIODE 1SS226
D17	8-719-800-76	s DIODE 1SS226
D18	8-719-100-03	s DIODE 1S2835
D19	8-719-911-19	s DIODE 1SS119
D20	8-719-100-05	s DIODE 1S2837
D21	8-719-100-05	s DIODE 1S2837
D22	8-719-800-76	s DIODE 1SS226
D23	8-719-800-76	s DIODE 1SS226
D24	8-719-800-76	s DIODE 1SS226
D25	8-719-800-76	s DIODE 1SS226
D26	8-719-982-04	s DIODE ERB81-004
D27	8-719-100-05	s DIODE 1S2837

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

## (SV-108A BOARD)

Ref. No. or Q'ty	Part No.	SP Description
D28	8-719-911-19	s DIODE 1SS119
D29	8-719-911-19	s DIODE 1SS119
D30	8-719-800-76	s DIODE 1SS226
D31	8-719-100-05	s DIODE 1S2837
D32	8-719-110-13	s DIODE RD9.1ES-B2
D33	8-719-110-13	s DIODE RD9.1ES-B2
D34	8-719-982-04	s DIODE ERB81-004
D35	8-719-100-05	s DIODE 1S2837
D36	8-719-100-05	s DIODE 1S2837
D37	8-719-100-05	s DIODE 1S2837
D38	8-719-100-05	s DIODE 1S2837
D39	8-719-982-04	s DIODE ERB81-004
D40	8-719-911-19	s DIODE 1SS119
IC1	8-751-941-05	s IC CX194B-5
IC2	8-743-915-10	s IC BX3915A
IC3	8-759-200-68	s IC TC4011BF
IC4	8-759-200-90	s IC TC4538BF
IC5	8-759-200-68	s IC TC4011BF
IC6	8-759-200-68	s IC TC4011BF
IC7	8-759-200-82	s IC TC4069UBF
IC8	8-759-200-80	s IC TC4050BF
IC9	8-759-200-90	s IC TC4538BF
IC10	8-759-200-90	s IC TC4538BF
IC11	8-759-200-90	s IC TC4538BF
IC12	8-759-200-82	s IC TC4069UBF
IC13	8-759-100-95	s IC UPC324G2
IC14	8-759-100-95	s IC UPC324G2
IC15	8-759-100-95	s IC UPC324G2
IC16	8-759-100-93	s IC UPC393G2
IC17	8-759-200-82	s IC TC4069UBF
IC18	8-759-200-67	s IC TC4001BF
IC19	8-759-100-93	s IC UPC393G2
IC20	8-759-100-93	s IC UPC393G2
IC21	8-759-207-74	s IC TC4030BFHB
IC22	8-759-208-11	s IC TC4053BFHB
IC23	8-759-208-11	s IC TC4053BFHB
IC24	8-759-208-11	s IC TC4053BFHB
IC25	8-759-205-78	s IC TC504013BF
IC26	8-759-100-93	s IC UPC393G2
IC27	8-759-208-11	s IC TC4053BFHB
IC28	8-759-100-96	s IC UPC4558G2
IC29	8-759-100-95	s IC UPC324G2
IC30	8-759-208-11	s IC TC4053BFHB
IC31	8-759-910-70	s IC MB3763PS
IC32	8-759-603-27	s IC M5201FP
L1	1-459-155-00	s COIL 45uH
L2	1-408-298-21	s COIL, CHOKE 2mH
L3	1-408-298-21	s COIL, CHOKE 2mH
L4	1-408-298-21	s COIL, CHOKE 2mH
PS1	△ 1-532-637-00	s LINK, IC 1.0A
PS2	△ 1-532-675-00	s LINK, IC 1.5A
PS3	△ 1-532-686-00	s LINK, IC 2.7A
Q1	8-729-901-06	s TRANSISTOR DTA144EK
Q2	8-729-901-06	s TRANSISTOR DTA144EK
Q3	8-729-100-66	s TRANSISTOR 2SC1623
Q5	8-729-100-66	s TRANSISTOR 2SC1623
Q6	8-729-216-22	s TRANSISTOR 2SA1162

## (SV-108A BOARD)

Ref. No. or Q'ty	Part No.	SP Description
Q7	8-729-100-66	s TRANSISTOR 2SC1623
Q8	8-729-901-01	s TRANSISTOR DTC144EK
Q9	8-729-175-72	s TRANSISTOR 2SC2757-T33
Q10	8-729-100-66	s TRANSISTOR 2SC1623
Q11	8-729-216-22	s TRANSISTOR 2SA1162
Q12	8-729-901-06	s TRANSISTOR DTA144EK
Q13	8-729-901-01	s TRANSISTOR DTC144EK
Q14	8-729-100-66	s TRANSISTOR 2SC1623
Q15	8-729-100-66	s TRANSISTOR 2SC1623
Q16	8-729-100-66	s TRANSISTOR 2SC1623
Q17	8-729-100-66	s TRANSISTOR 2SC1623
Q18	8-729-100-66	s TRANSISTOR 2SC1623
Q19	8-729-100-66	s TRANSISTOR 2SC1623
Q20	8-729-901-01	s TRANSISTOR DTC144EK
Q21	8-729-100-66	s TRANSISTOR 2SC1623
Q22	8-729-600-33	s TRANSISTOR 2SC403SP-5
Q23	8-729-100-66	s TRANSISTOR 2SC1623
Q24	8-729-901-06	s TRANSISTOR DTA144EK
Q25	8-729-901-01	s TRANSISTOR DTC144EK
Q26	8-729-400-67	s TRANSISTOR 2SD1030RTX
Q27	8-729-901-01	s TRANSISTOR DTC144EK
Q28	8-729-901-06	s TRANSISTOR DTA144EK
Q29	8-729-901-01	s TRANSISTOR DTC144EK
Q30	8-729-216-22	s TRANSISTOR 2SA1162
Q31	8-729-216-22	s TRANSISTOR 2SA1162
Q32	8-729-201-54	s TRANSISTOR 2SC2562-0
Q33	8-729-206-55	s TRANSISTOR 2SC3072-B
Q34	8-729-100-66	s TRANSISTOR 2SC1623
Q35	8-729-100-66	s TRANSISTOR 2SC1623
Q36	8-729-100-66	s TRANSISTOR 2SC1623
Q37	8-729-901-01	s TRANSISTOR DTC144EK
Q38	8-729-901-01	s TRANSISTOR DTC144EK
Q39	8-729-901-06	s TRANSISTOR DTA144EK
Q40	8-729-901-01	s TRANSISTOR DTC144EK
Q41	8-729-216-22	s TRANSISTOR 2SA1162
Q42	8-729-200-46	s TRANSISTOR 2SD1160
Q43	8-729-216-22	s TRANSISTOR 2SA1162
Q44	8-729-901-01	s TRANSISTOR DTC144EK
Q45	8-729-901-01	s TRANSISTOR DTC144EK
Q46	8-729-901-01	s TRANSISTOR DTC144EK
Q47	8-729-901-06	s TRANSISTOR DTA144EK
Q48	8-729-901-01	s TRANSISTOR DTC144EK
Q49	8-729-901-06	s TRANSISTOR DTA144EK
Q50	8-729-901-01	s TRANSISTOR DTC144EK
Q51	8-729-216-22	s TRANSISTOR 2SA1162
Q52	8-729-216-22	s TRANSISTOR 2SA1162
Q53	8-729-206-55	s TRANSISTOR 2SC3072-B
Q54	8-729-201-54	s TRANSISTOR 2SC2562-0
R143	1-216-748-11	s METAL, CHIP 39K 1% 1/10W
R148	1-216-692-11	s METAL, CHIP 51K 0.5% 1/10W
R151	1-215-485-00	s METAL 470K 1% 1/6W
R153	1-216-748-11	s METAL, CHIP 39K 1% 1/10W
R185	1-216-691-11	s METAL, CHIP 47K 0.5% 1/10W
R186	1-216-691-11	s METAL, CHIP 47K 0.5% 1/10W
R196	1-216-031-00	s METAL, CHIP 180 5% 1/10W
R202	1-216-748-11	s METAL, CHIP 39K 1% 1/10W
R214	1-216-748-11	s METAL, CHIP 39K 1% 1/10W
R229	1-216-103-00	s METAL, CHIP 180K 5% 1/10W
R248	1-216-748-11	s METAL, CHIP 39K 1% 1/10W

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

## (SV-108A BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R272	1-207-616-00	s WIREWOUND 0.47 10% 3W F
RV2	1-230-526-11	s RES, ADJ, METAL 47K
RV3	1-230-526-11	s RES, ADJ, METAL 47K
RV4	1-230-527-11	s RES, ADJ, METAL 100K
RV5	1-230-526-11	s RES, ADJ, METAL 47K
RV6	1-230-527-11	s RES, ADJ, METAL 100K
RV7	1-230-527-11	s RES, ADJ, METAL 100K
RV8	1-230-527-11	s RES, ADJ, METAL 100K
RV9	1-230-528-11	s RES, ADJ, METAL 220K
RV10	1-230-526-11	s RES, ADJ, METAL 47K
RV11	1-230-528-11	s RES, ADJ, METAL 220K
RV12	1-230-522-11	s RES, ADJ, METAL 4.7K
RV13	1-230-520-11	s RES, ADJ, METAL 1K
RV14	1-230-526-11	s RES, ADJ, METAL 47K
RV15	1-230-523-11	s RES, ADJ, METAL 10K
RV16	1-230-528-11	s RES, ADJ, METAL 220K
X1	1-567-860-11	s CRYSTAL, 4.433618MHZ

## SW-296 BOARD

Ref. No. or Q'ty	Part No.	SP Description
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All of the component parts on this board are supplied together when you order the VA-76 board.

	1-629-246-12	o PRINTED CIRCUIT BOARD, SW-296
C1	1-124-638-11	s ELECT 22uF 20% 10V
C2	1-124-638-11	s ELECT 22uF 20% 10V
C3	1-161-379-00	s CERAMIC 0.01uF 20% 25V
CN1	1-569-710-11	o PIN, B-B 10P
CN2	1-569-710-11	o PIN, B-B 10P
D1	8-719-109-85	s DIODE RD5.1ES-B2
IC1	8-759-700-39	s IC NJM4562S-D
R1	1-249-437-11	s CARBON 47K 5% 1/4W
R2	1-249-437-11	s CARBON 47K 5% 1/4W
R3	1-249-419-11	s CARBON 1.5K 5% 1/4W
S1	1-570-844-11	s SWITCH, SLIDE
S2	1-570-844-11	s SWITCH, SLIDE
S3	1-570-835-11	s SWITCH, SLIDE

## SY-131A BOARD

Ref. No. or Q'ty	Part No.	SP Description
	A-6717-530-A	o MOUNTED CIRCUIT BOARD, SY-131A
C2	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C3	1-126-154-11	s ELECT 47uF 20% 6.3V
C4	1-164-161-11	s CERAMIC, CHIP 0.0022uF 10% 100V
C5	1-126-154-11	s ELECT 47uF 20% 6.3V
C6	1-164-161-11	s CERAMIC, CHIP 0.0022uF 10% 100V
C9	1-126-154-11	s ELECT 47uF 20% 6.3V
C10	1-131-343-00	s TANTALUM 0.22uF 10% 35V
C14	1-124-261-00	s ELECT 10uF 20% 50V
C15	1-124-465-00	s ELECT 0.47uF 20% 50V
C16	1-131-348-00	s TANTALUM 1.5uF 10% 35V
C20	1-124-465-00	s ELECT 0.47uF 20% 50V
C21	1-126-157-11	s ELECT 10uF 20% 16V
C22	1-126-157-11	s ELECT 10uF 20% 16V
C25	1-124-589-11	s ELECT 47uF 20% 16V
C28	1-164-161-11	s CERAMIC, CHIP 0.0022uF 10% 100V
C30	1-164-161-11	s CERAMIC, CHIP 0.0022uF 10% 100V
C32	1-164-161-11	s CERAMIC, CHIP 0.0022uF 10% 100V
C34	1-124-589-11	s ELECT 47uF 20% 16V
C38	1-126-094-11	s ELECT 4.7uF 20% 35V
C40	1-131-343-00	s TANTALUM 0.22uF 10% 35V
C62	1-126-162-11	s ELECT 3.3uF 20% 50V
C68	1-131-345-00	s TANTALUM 0.47uF 10% 35V
C201	1-124-589-11	s ELECT 47uF 20% 16V
C202	1-124-589-11	s ELECT 47uF 20% 16V
C203	1-125-443-11	s DOUBLE LAYERS 0.047F 5.5V
C204	1-124-261-00	s ELECT 10uF 20% 50V
C205	1-124-261-00	s ELECT 10uF 20% 50V
C206	1-124-589-11	s ELECT 47uF 20% 16V
C209	1-124-589-11	s ELECT 47uF 20% 16V
C210	1-124-584-00	s ELECT 100uF 20% 10V
C211	1-124-584-00	s ELECT 100uF 20% 10V
C212	1-126-153-11	s ELECT 22uF 20% 6.3V
C213	1-163-988-11	s CERAMIC CHIP 180PF 5% 100V
C214	1-163-988-11	s CERAMIC CHIP 180PF 5% 100V
C215	1-109-620-00	s MICA 200PF 5% 500V
C216	1-109-687-00	s MICA 390PF 5% 500V
C217	1-109-692-00	s MICA 620PF 5% 500V
C218	1-124-229-00	s ELECT 33uF 20% 10V
C219	1-124-229-00	s ELECT 33uF 20% 10V
C220	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C223	1-124-225-00	s ELECT 100uF 20% 6.3V
C224	1-163-833-00	s CERAMIC, CHIP 0.068uF 25V
C225	1-124-261-00	s ELECT 10uF 20% 50V
C228	1-109-626-00	s MICA 100PF 5% 500V
CN101	1-563-234-11	o CONNECTOR, FPC 23P, MALE
CN102	1-563-234-11	o CONNECTOR, FPC 23P, MALE
CN103	1-563-017-11	o CONNECTOR, FPC 30P, MALE
CN104	1-506-491-11	o CONNECTOR, 12P, MALE
CN105	1-562-717-11	o CONNECTOR, 34P, MALE
CN106	1-562-717-11	o CONNECTOR, 34P, MALE
CN111	1-506-477-11	s CONNECTOR, 12P, MALE
CN112	1-506-477-11	s CONNECTOR, 12P, MALE
CN113	1-506-468-11	s CONNECTOR, 3P, MALE
CN114	1-506-468-11	s CONNECTOR, 3P, MALE
CN115	1-506-468-11	s CONNECTOR, 3P, MALE
CN116	1-506-469-11	o CONNECTOR, 4P, MALE

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

(SY-131A BOARD)

Ref. No. or Q'ty	Part No.	SP Description
CP201	1-466-071-11	s OSCILLATION UNIT, BIAS
CV201	1-141-393-11	s CAP, TRIMMER 100PF
D1	8-719-109-88	s DIODE RD5.6ES-B1
D2	8-719-100-03	s DIODE 1S2835
D3	8-719-100-05	s DIODE 1S2837
D4	8-719-100-03	s DIODE 1S2835
D5	8-719-100-03	s DIODE 1S2835
D6	8-719-911-19	s DIODE 1SS119
D7	8-719-109-88	s DIODE RD5.6ES-B1
D8	8-719-400-18	s DIODE MA152WK
D201	8-719-200-02	s DIODE 10E2
D202	8-719-100-05	s DIODE 1S2837
D203	8-719-105-52	s DIODE RD3.6M-B2
IC1	8-759-982-XX	s IC MB88551H-311M
IC2	8-759-983-01	s IC MB88551H-312M
IC3	8-759-983-00	s IC MB88505H-1019M
IC4	8-759-605-86	s IC CXA1261M
IC5	8-759-100-93	s IC UPC393G2
IC6	8-759-605-86	s IC CXA1261M
IC7	8-759-100-93	s IC UPC393G2
IC8	8-759-100-93	s IC UPC393G2
IC9	8-759-925-73	s IC SN74HC03NS
IC10	8-759-100-93	s IC UPC393G2
IC11	8-759-200-82	s IC TC4069UBF
IC12	8-759-200-72	s IC TC4019BF
IC13	8-759-200-90	s IC TC4538BF
IC14	8-759-200-67	s IC TC4001BF
IC15	8-759-926-95	s IC SN74HC4020NS
IC16	8-759-200-84	s IC TC4081BF
IC17	8-759-200-84	s IC TC4081BF
IC18	8-759-207-74	s IC TC4030BFHB
IC19	8-759-208-11	s IC TC4053BFHB
IC20	8-759-200-90	s IC TC4538BF
IC21	8-759-100-94	s IC UPC358G2
IC201	8-759-982-05	s IC RC7805FA
IC202	8-759-208-11	s IC TC4053BFHB
IC203	8-759-700-09	s IC NJM2043M-D
L201	1-410-667-31	s INDUCTOR 22uH
L202	1-410-482-31	s INDUCTOR 100uH
LV201	1-407-285-00	s INDUCTOR, VAR 1.5mH
Q1	8-729-901-01	s TRANSISTOR DTC144EK
Q2	8-729-901-01	s TRANSISTOR DTC144EK
Q3	8-729-901-01	s TRANSISTOR DTC144EK
Q4	8-729-901-01	s TRANSISTOR DTC144EK
Q5	8-729-901-01	s TRANSISTOR DTC144EK
Q6	8-729-901-01	s TRANSISTOR DTC144EK
Q7	8-729-901-01	s TRANSISTOR DTC144EK
Q8	8-729-901-06	s TRANSISTOR DTA144EK
Q9	8-729-901-01	s TRANSISTOR DTC144EK
Q10	8-729-901-06	s TRANSISTOR DTA144EK
Q11	8-729-901-01	s TRANSISTOR DTC144EK
Q12	8-729-901-01	s TRANSISTOR DTC144EK
Q13	8-729-901-06	s TRANSISTOR DTA144EK
Q14	8-729-901-01	s TRANSISTOR DTC144EK
Q15	8-729-901-06	s TRANSISTOR DTA144EK
Q16	8-729-901-06	s TRANSISTOR DTA144EK

(SY-131A BOARD),

Ref. No. or Q'ty	Part No.	SP Description
Q17	8-729-901-01	s TRANSISTOR DTC144EK
Q18	8-729-901-01	s TRANSISTOR DTC144EK
Q19	8-729-901-06	s TRANSISTOR DTA144EK
Q20	8-729-901-06	s TRANSISTOR DTA144EK
Q21	8-729-901-01	s TRANSISTOR DTC144EK
Q22	8-729-901-01	s TRANSISTOR DTC144EK
Q23	8-729-901-01	s TRANSISTOR DTC144EK
Q24	8-729-901-01	s TRANSISTOR DTC144EK
Q25	8-729-901-01	s TRANSISTOR DTC144EK
Q26	8-729-901-01	s TRANSISTOR DTC144EK
Q27	8-729-901-01	s TRANSISTOR DTC144EK
Q28	8-729-901-01	s TRANSISTOR DTC144EK
Q29	8-729-901-01	s TRANSISTOR DTC144EK
Q30	8-729-901-01	s TRANSISTOR DTC144EK
Q31	8-729-901-01	s TRANSISTOR DTC144EK
Q32	8-729-901-01	s TRANSISTOR DTC144EK
Q33	8-729-901-01	s TRANSISTOR DTC144EK
Q201	8-729-901-01	s TRANSISTOR DTC144EK
Q202	8-729-901-01	s TRANSISTOR DTC144EK
Q203	8-729-901-06	s TRANSISTOR DTA144EK
Q204	8-729-102-93	s TRANSISTOR 2SD5960V4
Q205	8-729-901-06	s TRANSISTOR DTA144EK
Q206	8-729-901-01	s TRANSISTOR DTC144EK
Q207	8-729-901-06	s TRANSISTOR DTA144EK
Q208	8-729-202-38	s TRANSISTOR 2SC3326N
Q209	8-729-901-06	s TRANSISTOR DTA144EK
R40	1-216-682-11	s METAL, CHIP 20K 0.5% 1/10W
R41	1-216-672-11	s METAL, CHIP 7.5K 0.5% 1/10W
R42	1-216-673-11	s METAL, CHIP 8.2K 0.5% 1/10W
R43	1-216-679-11	s METAL, CHIP 15K 0.5% 1/10W
R45	1-215-487-00	s METAL 560K 1% 1/6W
R50	1-216-699-11	s METAL, CHIP 100K 0.5% 1/10W
R51	1-216-682-11	s METAL, CHIP 20K 0.5% 1/10W
R52	1-216-686-11	s METAL, CHIP 30K 0.5% 1/10W
R74	1-216-119-00	s METAL, CHIP 820K 5% 1/10W
R82	1-216-665-11	s METAL, CHIP 3.9K 0.5% 1/10W
R184	1-247-887-00	s CARBON 100K 5% 1/4W
R201	1-247-736-11	s CARBON 56 5% 1/2W
R224	1-215-484-00	s METAL 430K 1% 1/6W
R225	1-216-648-11	s METAL, CHIP 750 0.5% 1/10W
R227	1-216-019-00	s METAL, CHIP 56 5% 1/10W
RB1	1-231-387-00	s COMPOSITION CIRCUIT BLOCK
RV1	1-230-522-11	s RES, ADJ, METAL 4.7K
RV201	1-230-528-11	s RES, ADJ, METAL 220K
RV202	1-230-528-11	s RES, ADJ, METAL 220K
RV204	1-230-523-11	s RES, ADJ, METAL 10K
RV205	1-230-528-11	s RES, ADJ, METAL 220K
RY201	1-515-614-11	s RELAY
S1	1-553-977-00	s SWITCH, SLIDE
X1	1-567-132-00	s RESONATOR, CERAMIC 8.00MHz
X2	1-567-962-11	s CRYSTAL 8MHz

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.



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TR-54 BOARD  
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Ref. No. or Q'ty	Part No.	SP Description
	1-629-250-11	o PRINTED CIRCUIT BOARD, TR-54
Q1	8-729-205-32	s TRANSISTOR 2SB553-Y

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VA-76 BOARD  
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Ref. No. or Q'ty	Part No.	SP Description
	This board includes the DUS-262, HP-45, SW-296 boards.	

	△ A-6727-051-A	o MOUNTED CIRCUIT BOARD, VA-76
	1-237-701-11	s RES, VAR CARBON 5K
	1-533-189-11	o HOLDER, FUSE
	1-553-245-00	s SWITCH, TOGGLE
	3-621-124-00	s SPACER

	3-731-643-01	o CHASSIS, VF
	3-731-666-01	o SPACER, V

C1	1-124-584-00	s ELECT 100uF 20% 10V
C3	1-124-584-00	s ELECT 100uF 20% 10V
C10	1-126-157-11	s ELECT 10uF 20% 16V
C11	1-124-589-11	s ELECT 47uF 20% 16V
C12	1-126-157-11	s ELECT 10uF 20% 16V

C13	1-124-229-00	s ELECT 33uF 20% 10V
C14	1-163-081-00	s CERAMIC, CHIP 0.22uF 25V
C16	1-109-633-00	s DIP MICA 470PF 2% 500V
C17	1-126-157-11	s ELECT 10uF 20% 16V
C20	1-107-045-00	s MICA 3.9PF 500V

C21	1-124-589-11	s ELECT 47uF 20% 16V
C23	1-124-589-11	s ELECT 47uF 20% 16V
C30	1-130-475-00	s MYLAR 0.0022uF 5% 50V
C35	1-124-589-11	s ELECT 47uF 20% 16V
C42	1-162-728-11	s CERAMIC 560PF 1% 50V

C44	1-109-541-00	s MICA 200PF 5% 100V
C48	1-124-589-11	s ELECT 47uF 20% 16V
C49	1-124-589-11	s ELECT 47uF 20% 16V
C50	1-126-157-11	s ELECT 10uF 20% 16V
C51	1-126-157-11	s ELECT 10uF 20% 16V

C52	1-124-589-11	s ELECT 47uF 20% 16V
C54	1-109-633-00	s DIP MICA 470PF 2% 500V
C57	1-124-589-11	s ELECT 47uF 20% 16V
C59	1-124-589-11	s ELECT 47uF 20% 16V
C63	1-124-589-11	s ELECT 47uF 20% 16V

C66	1-126-101-11	s ELECT 100uF 20% 16V
C68	1-126-101-11	s ELECT 100uF 20% 16V
C71	1-124-589-11	s ELECT 47uF 20% 16V
C73	1-124-589-11	s ELECT 47uF 20% 16V
C75	1-130-475-00	s MYLAR 0.0022uF 5% 50V

C78	1-109-539-00	s MICA 150PF 5% 100V
C83	1-107-042-00	s MICA 2.2PF 500V
C91	1-109-633-00	s DIP MICA 470PF 2% 500V
C92	1-124-589-11	s ELECT 47uF 20% 16V
C95	1-107-084-00	s MICA 91PF 5% 50V

C96	1-107-090-00	s MICA 160PF 5% 50V
C98	1-124-589-11	s ELECT 47uF 20% 16V
C99	1-124-589-11	s ELECT 47uF 20% 16V
C101	1-126-176-11	s ELECT 220uF 20% 10V
C105	1-124-225-00	s ELECT 100uF 20% 6.3V

C110	1-131-377-00	s TANTALUM 10uF 10% 10V
C111	1-107-159-00	s MICA 33PF 5% 500V
C112	1-107-159-00	s MICA 33PF 5% 500V
C113	1-107-159-00	s MICA 33PF 5% 500V
C114	1-126-157-11	s ELECT 10uF 20% 16V

C115	1-126-157-11	s ELECT 10uF 20% 16V
C117	1-107-159-00	s MICA 33PF 5% 500V
C121	1-126-157-11	s ELECT 10uF 20% 16V
C123	1-126-160-11	s ELECT 1uF 20% 50V
C124	1-126-160-11	s ELECT 1uF 20% 50V

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.



## (VA-76 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C125	1-126-160-11	s ELECT 1uF 20% 50V
C126	1-107-209-00	s MICA 20PF 5% 500V
C127	1-126-160-11	s ELECT 1uF 20% 50V
C131	1-107-167-00	s MICA 75PF 5% 50V
C133	1-126-160-11	s ELECT 1uF 20% 50V
C134	1-109-543-00	s DIP MICA 240PF 10% 100V
C135	1-107-084-00	s MICA 91PF 5% 50V
C136	1-124-257-00	s ELECT 2.2uF 20% 50V
C137	1-130-478-00	s MYLAR 0.0039uF 5% 50V
C144	1-126-094-11	s ELECT 4.7uF 20% 35V
C146	1-124-589-11	s ELECT 47uF 20% 16V
C148	1-126-160-11	s ELECT 1uF 20% 50V
C151	1-124-589-11	s ELECT 47uF 20% 16V
C154	1-124-584-00	s ELECT 100uF 20% 10V
C155	1-124-589-11	s ELECT 47uF 20% 16V
C156	1-163-081-00	s CERAMIC, CHIP 0.22uF 25V
C157	1-126-160-11	s ELECT 1uF 20% 50V
C161	1-124-589-11	s ELECT 47uF 20% 16V
C165	1-124-589-11	s ELECT 47uF 20% 16V
C166	1-124-589-11	s ELECT 47uF 20% 16V
C169	1-124-589-11	s ELECT 47uF 20% 16V
C170	1-124-589-11	s ELECT 47uF 20% 16V
C171	1-124-589-11	s ELECT 47uF 20% 16V
C173	1-124-589-11	s ELECT 47uF 20% 16V
C174	1-124-589-11	s ELECT 47uF 20% 16V
C176	1-124-589-11	s ELECT 47uF 20% 16V
C179	1-124-584-00	s ELECT 100uF 20% 10V
C182	1-107-206-00	s MICA 15PF 5% 500V
C183	1-107-077-00	s MICA 47PF 5% 50V
C184	1-107-202-00	s MICA 10PF 5% 500V
C202	1-124-225-00	s ELECT 100uF 20% 6.3V
C204	1-126-157-11	s ELECT 10uF 20% 16V
C205	1-126-160-11	s ELECT 1uF 20% 50V
C209	1-124-589-11	s ELECT 47uF 20% 16V
C211	1-124-589-11	s ELECT 47uF 20% 16V
C212	1-124-589-11	s ELECT 47uF 20% 16V
C214	1-107-207-00	s MICA 16PF 5% 500V
C217	1-162-722-11	s CERAMIC 330PF 1% 50V
C219	1-124-584-00	s ELECT 100uF 20% 10V
C220	1-126-157-11	s ELECT 10uF 20% 16V
C221	1-164-161-11	s CERAMIC, CHIP 0.0022uF 10% 100V
C224	1-163-016-00	s CERAMIC CHIP 0.0039uF 10% 50V
C227	1-124-584-00	s ELECT 100uF 20% 10V
C302	1-124-589-11	s ELECT 47uF 20% 16V
C304	1-126-101-11	s ELECT 100uF 20% 16V
C306	1-126-101-11	s ELECT 100uF 20% 16V
C308	1-126-103-11	s ELECT 470uF 20% 16V
C310	1-124-589-11	s ELECT 47uF 20% 16V
C321	1-124-584-00	s ELECT 100uF 20% 10V
C324	1-124-589-11	s ELECT 47uF 20% 16V
C325	1-124-589-11	s ELECT 47uF 20% 16V
C326	1-124-589-11	s ELECT 47uF 20% 16V
C328	1-126-096-11	s ELECT 10uF 20% 35V
C329	1-124-119-00	s ELECT 330uF 20% 16V
C330	1-126-101-11	s ELECT 100uF 20% 16V
C341	1-126-154-11	s ELECT 47uF 20% 6.3V
C342	1-126-157-11	s ELECT 10uF 20% 16V
C343	1-124-589-11	s ELECT 47uF 20% 16V
C344	1-124-584-00	s ELECT 100uF 20% 10V
C347	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V

## (VA-76 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C348	1-124-589-11	s ELECT 47uF 20% 16V
C349	1-126-157-11	s ELECT 10uF 20% 16V
C350	1-109-540-00	s MICA 180PF 5% 100V
C351	1-126-157-11	s ELECT 10uF 20% 16V
C352	1-126-154-11	s ELECT 47uF 20% 6.3V
C354	1-131-341-00	s TANTALUM 0.1uF 10% 35V
C355	1-124-584-00	s ELECT 100uF 20% 10V
C356	1-124-234-00	s ELECT 22uF 20% 16V
C357	1-124-234-00	s ELECT 22uF 20% 16V
C358	1-124-584-00	s ELECT 100uF 20% 10V
C359	1-126-101-11	s ELECT 100uF 20% 16V
C402	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C403	1-124-584-00	s ELECT 100uF 20% 10V
C404	1-124-589-11	s ELECT 47uF 20% 16V
C405	1-126-157-11	s ELECT 10uF 20% 16V
C406	1-124-589-11	s ELECT 47uF 20% 16V
C412	1-130-487-00	s MYLAR 0.022uF 5% 50V
C413	1-124-589-11	s ELECT 47uF 20% 16V
C421	1-163-023-00	s CERAMIC, CHIP 0.015uF 5% 50V
C423	1-126-157-11	s ELECT 10uF 20% 16V
C424	1-124-589-11	s ELECT 47uF 20% 16V
C425	1-124-584-00	s ELECT 100uF 20% 10V
C427	1-124-234-00	s ELECT 22uF 20% 16V
C428	1-124-234-00	s ELECT 22uF 20% 16V
C431	1-124-589-11	s ELECT 47uF 20% 16V
C437	1-124-584-00	s ELECT 100uF 20% 10V
C439	1-124-234-00	s ELECT 22uF 20% 16V
C441	1-124-589-11	s ELECT 47uF 20% 16V
C442	1-107-167-00	s MICA 75PF 5% 50V
C502	1-126-157-11	s ELECT 10uF 20% 16V
C505	1-124-589-11	s ELECT 47uF 20% 16V
C506	1-124-463-00	s ELECT 0.1uF 20% 50V
C507	1-162-872-11	s CERAMIC 51PF 5% 50V
C512	1-124-584-00	s ELECT 100uF 20% 10V
C513	1-126-157-11	s ELECT 10uF 20% 16V
C516	1-126-157-11	s ELECT 10uF 20% 16V
C519	1-162-889-11	s CERAMIC 680PF 5% 50V
C520	1-126-157-11	s ELECT 10uF 20% 16V
C521	1-124-589-11	s ELECT 47uF 20% 16V
C523	1-124-589-11	s ELECT 47uF 20% 16V
C524	1-124-589-11	s ELECT 47uF 20% 16V
C525	1-124-589-11	s ELECT 47uF 20% 16V
C527	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C528	1-126-157-11	s ELECT 10uF 20% 16V
C529	1-127-485-11	s ELECT 33uF 6.3V
C531	1-126-157-11	s ELECT 10uF 20% 16V
C532	1-126-157-11	s ELECT 10uF 20% 16V
C603	1-124-446-11	s ELECT 47uF 20% 10V
C607	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C608	1-126-154-11	s ELECT 47uF 20% 6.3V
C609	1-126-157-11	s ELECT 10uF 20% 16V
C612	1-126-157-11	s ELECT 10uF 20% 16V
C613	1-126-153-11	s ELECT 22uF 20% 6.3V
C615	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C616	1-126-157-11	s ELECT 10uF 20% 16V
C618	1-164-161-11	s CERAMIC, CHIP 0.0022uF 10% 100V
C619	1-126-153-11	s ELECT 22uF 20% 6.3V
C620	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C631	1-126-157-11	s ELECT 10uF 20% 16V
C632	1-126-094-11	s ELECT 4.7uF 20% 35V

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

## (VA-76 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C633	1-126-094-11	s ELECT 4.7uF 20% 35V
C634	1-126-154-11	s ELECT 47uF 20% 6.3V
C635	1-126-153-11	s ELECT 22uF 20% 6.3V
C636	1-126-153-11	s ELECT 22uF 20% 6.3V
C637	1-126-153-11	s ELECT 22uF 20% 6.3V
C638	1-126-094-11	s ELECT 4.7uF 20% 35V
C639	1-126-094-11	s ELECT 4.7uF 20% 35V
C640	1-130-483-00	s MYLAR 0.01uF 5% 50V
C641	1-130-487-00	s MYLAR 0.022uF 5% 50V
C643	1-130-483-00	s MYLAR 0.01uF 5% 50V
C644	1-130-489-00	s MYLAR 0.033uF 5% 50V
C645	1-130-486-00	s MYLAR 0.018uF 10% 50V
C646	1-130-486-00	s MYLAR 0.018uF 10% 50V
C671	1-126-153-11	s ELECT 22uF 20% 6.3V
C673	1-130-475-00	s MYLAR 0.0022uF 5% 50V
C674	1-130-475-00	s MYLAR 0.0022uF 5% 50V
C675	1-130-478-00	s MYLAR 0.0039uF 5% 50V
C676	1-131-345-00	s TANTALUM 0.47uF 10% 35V
C677	1-130-497-00	s MYLAR 0.15uF 5% 50V
C678	1-130-485-00	s MYLAR 0.015uF 5% 50V
C679	1-126-160-11	s ELECT 1uF 20% 50V
C680	1-130-499-00	s MYLAR 0.22uF 5% 50V
C681	1-130-495-00	s MYLAR 0.1uF 5% 50V
C682	1-130-492-11	s MYLAR 0.056uF 5% 50V
C683	1-126-160-11	s ELECT 1uF 20% 50V
C684	1-130-480-00	s MYLAR 0.0056uF 5% 50V
C685	1-130-483-00	s MYLAR 0.01uF 5% 50V
C686	1-124-225-00	s ELECT 100uF 20% 6.3V
C688	1-124-225-00	s ELECT 100uF 20% 6.3V
C705	1-126-154-11	s ELECT 47uF 20% 6.3V
C706	1-124-446-11	s ELECT 47uF 20% 10V
C707	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C708	1-126-157-11	s ELECT 10uF 20% 16V
C709	1-126-157-11	s ELECT 10uF 20% 16V
C710	1-126-153-11	s ELECT 22uF 20% 6.3V
C712	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C713	1-130-485-00	s MYLAR 0.015uF 5% 50V
C715	1-126-154-11	s ELECT 47uF 20% 6.3V
C716	1-126-157-11	s ELECT 10uF 20% 16V
C717	1-126-157-11	s ELECT 10uF 20% 16V
C719	1-164-161-11	s CERAMIC, CHIP 0.0022uF 10% 100V
C721	1-126-153-11	s ELECT 22uF 20% 6.3V
C725	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C731	1-126-157-11	s ELECT 10uF 20% 16V
C732	1-126-094-11	s ELECT 4.7uF 20% 35V
C733	1-126-094-11	s ELECT 4.7uF 20% 35V
C734	1-126-154-11	s ELECT 47uF 20% 6.3V
C735	1-126-153-11	s ELECT 22uF 20% 6.3V
C736	1-126-153-11	s ELECT 22uF 20% 6.3V
C737	1-126-153-11	s ELECT 22uF 20% 6.3V
C738	1-126-094-11	s ELECT 4.7uF 20% 35V
C739	1-126-094-11	s ELECT 4.7uF 20% 35V
C740	1-130-483-00	s MYLAR 0.01uF 5% 50V
C741	1-130-487-00	s MYLAR 0.022uF 5% 50V
C743	1-130-483-00	s MYLAR 0.01uF 5% 50V
C744	1-130-489-00	s MYLAR 0.033uF 5% 50V
C745	1-130-486-00	s MYLAR 0.018uF 10% 50V
C746	1-130-486-00	s MYLAR 0.018uF 10% 50V
C771	1-126-153-11	s ELECT 22uF 20% 6.3V
C773	1-130-475-00	s MYLAR 0.0022uF 5% 50V

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Ref. No. or Q'ty	Part No.	SP Description
C774	1-130-475-00	s MYLAR 0.0022uF 5% 50V
C775	1-130-478-00	s MYLAR 0.0039uF 5% 50V
C776	1-131-345-00	s TANTALUM 0.47uF 10% 35V
C777	1-130-497-00	s MYLAR 0.15uF 5% 50V
C778	1-130-485-00	s MYLAR 0.015uF 5% 50V
C779	1-126-160-11	s ELECT 1uF 20% 50V
C780	1-130-499-00	s MYLAR 0.22uF 5% 50V
C781	1-130-495-00	s MYLAR 0.1uF 5% 50V
C782	1-130-492-11	s MYLAR 0.056uF 5% 50V
C783	1-126-160-11	s ELECT 1uF 20% 50V
C784	1-130-480-00	s MYLAR 0.0056uF 5% 50V
C785	1-130-483-00	s MYLAR 0.01uF 5% 50V
C801	1-126-157-11	s ELECT 10uF 20% 16V
C802	1-124-589-11	s ELECT 47uF 20% 16V
C813	1-124-584-00	s ELECT 100uF 20% 10V
C814	1-124-584-00	s ELECT 100uF 20% 10V
C815	1-124-584-00	s ELECT 100uF 20% 10V
C816	1-124-584-00	s ELECT 100uF 20% 10V
C817	1-124-225-00	s ELECT 100uF 20% 6.3V
C820	1-124-225-00	s ELECT 100uF 20% 6.3V
C821	1-126-157-11	s ELECT 10uF 20% 16V
C822	1-126-176-11	s ELECT 220uF 20% 10V
C824	1-126-157-11	s ELECT 10uF 20% 16V
C832	1-126-157-11	s ELECT 10uF 20% 16V
C833	1-126-157-11	s ELECT 10uF 20% 16V
C834	1-126-157-11	s ELECT 10uF 20% 16V
C835	1-126-157-11	s ELECT 10uF 20% 16V
C871	1-126-153-11	s ELECT 22uF 20% 6.3V
C872	1-131-384-00	s TANTALUM 15uF 10% 6.3V
C873	1-126-094-11	s ELECT 4.7uF 20% 35V
C874	1-130-494-11	s MYLAR 0.082uF 5% 50V
C875	1-126-153-11	s ELECT 22uF 20% 6.3V
C876	1-131-384-00	s TANTALUM 15uF 10% 6.3V
C877	1-126-094-11	s ELECT 4.7uF 20% 35V
C878	1-130-494-11	s MYLAR 0.082uF 5% 50V
C879	1-124-464-11	s ELECT 0.22uF 20% 50V
C880	1-126-157-11	s ELECT 10uF 20% 16V
C884	1-124-442-00	s ELECT 330uF 20% 6.3V
C901	1-124-898-11	s ELECT 4700uF 20% 16V
C902	1-124-898-11	s ELECT 4700uF 20% 16V
C903	1-102-106-00	s CERAMIC 100PF 10% 50V
C906	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C908	1-124-589-11	s ELECT 47uF 20% 16V
C909	1-126-157-11	s ELECT 10uF 20% 16V
C910	1-126-101-11	s ELECT 100uF 20% 16V
C911	1-163-037-11	s CERAMIC, CHIP 0.022uF 10% 25V
C912	1-124-225-00	s ELECT 100uF 20% 6.3V
C913	1-126-160-11	s ELECT 1uF 20% 50V
C914	1-127-514-00	s ELECT(SOLID) 33uF 20% 16V
C915	1-127-514-00	s ELECT(SOLID) 33uF 20% 16V
C916	1-127-514-00	s ELECT(SOLID) 33uF 20% 16V
C917	1-127-514-00	s ELECT(SOLID) 33uF 20% 16V
C918	1-126-154-11	s ELECT 47uF 20% 6.3V
C922	1-161-021-11	s CERAMIC 0.047uF 10% 25V
C923	1-161-051-00	s CERAMIC 0.01uF 10% 50V
CN501	1-563-336-11	o HOUSING, 64P
CN504	1-508-901-00	o CONNECTOR, 3P, MALE
CN505	1-562-717-11	o CONNECTOR, 34P, MALE
CN506	1-562-717-11	o CONNECTOR, 34P, MALE

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

## (VA-76 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
CN513	1-506-476-11	o CONNECTOR, 11P, MALE
CN514	1-506-485-11	s CONNECTOR, 6P, MALE
CN517	1-506-487-11	s CONNECTOR, 8P, MALE
CN518	1-506-485-11	s CONNECTOR, 6P, MALE
CN519	1-506-469-11	o CONNECTOR, 4P, MALE
CN520	1-506-482-11	s CONNECTOR, 3P, MALE
CN521	1-506-485-11	s CONNECTOR, 6P, MALE
CN525	1-506-483-21	o CONNECTOR, 4P, MALE
CN526	1-506-473-11	s CONNECTOR, 8P, MALE
CN527	1-506-469-11	o CONNECTOR, 4P, MALE
CN528	1-506-468-11	s CONNECTOR, 3P, MALE
CN530	1-506-473-11	o CONNECTOR, 8P, MALE
CN531	1-506-468-11	s CONNECTOR, 3P, MALE
CN532	1-506-468-11	s CONNECTOR, 3P, MALE
CN533	1-506-483-21	s CONNECTOR, 4P, MALE
CN590	1-506-481-11	o CONNECTOR, 2P, MALE
CN1005	1-507-195-21	s JACK, REMOTE CONTROL
CP671	1-236-017-11	s FILTER, LOW-PASS
CP771	1-236-017-11	s FILTER, LOW-PASS
CV1	1-141-276-00	s CAP, TRIMMER B
CV501	1-141-365-11	s CAP, TRIMMER 100PF
D1	8-719-109-44	s DIODE 1SS99-1
D2	8-719-109-44	s DIODE 1SS99-1
D3	8-719-100-05	s DIODE 1S2837
D8	8-719-100-05	s DIODE 1S2837
D9	8-719-100-05	s DIODE 1S2837
D10	8-719-109-72	s DIODE RD3.9ES-B2
D11	8-719-100-05	s DIODE 1S2837
D12	8-719-100-05	s DIODE 1S2837
D13	8-719-812-41	s LED TLR124, RED
D14	8-719-911-19	s DIODE 1SS119
D301	8-719-100-03	s DIODE 1S2835
D303	8-719-100-05	s DIODE 1S2837
D305	8-719-100-05	s DIODE 1S2837
D306	8-719-100-03	s DIODE 1S2835
D307	8-719-100-05	s DIODE 1S2837
D311	8-719-101-97	s DIODE 1SS97-1
D312	8-719-101-97	s DIODE 1SS97-1
D313	8-719-109-44	s DIODE 1SS99-1
D314	8-719-109-44	s DIODE 1SS99-1
D315	8-719-109-44	s DIODE 1SS99-1
D316	8-719-109-44	s DIODE 1SS99-1
D401	8-719-100-05	s DIODE 1S2837
D402	8-719-100-05	s DIODE 1S2837
D403	8-719-100-05	s DIODE 1S2837
D405	8-719-109-44	s DIODE 1SS99-1
D406	8-719-109-44	s DIODE 1SS99-1
D407	8-719-109-44	s DIODE 1SS99-1
D408	8-719-109-44	s DIODE 1SS99-1
D501	8-719-100-05	s DIODE 1S2837
D503	8-719-100-05	s DIODE 1S2837
D504	8-719-100-05	s DIODE 1S2837
D631	8-719-100-05	s DIODE 1S2837
D632	8-719-800-76	s DIODE 1SS226
D731	8-719-100-05	s DIODE 1S2837
D732	8-719-800-76	s DIODE 1SS226
D801	8-719-106-53	s DIODE RD10M-B2
D804	8-719-100-05	s DIODE 1S2837

## (VA-76 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
D805	8-719-100-05	s DIODE 1S2837
D806	8-719-100-05	s DIODE 1S2837
D807	8-719-200-02	s DIODE 10E2
D831	8-719-100-05	s DIODE 1S2837
D832	8-719-100-05	s DIODE 1S2837
D833	8-719-100-05	s DIODE 1S2837
D835	8-719-100-05	s DIODE 1S2837
D871	8-719-105-40	s DIODE RD3.0M-B2
D901	8-719-100-05	s DIODE 1S2837
D902	8-719-105-40	s DIODE RD3.0M-B2
D903	8-719-100-05	s DIODE 1S2837
D904	8-719-100-05	s DIODE 1S2837
D905	8-719-933-70	s DIODE HZS11C2L
D907	8-719-911-19	s DIODE 1SS119
D908	8-719-100-05	s DIODE 1S2837
D909	8-719-104-34	s DIODE 1S2836
D910	8-719-110-13	s DIODE RD9.1ESB2
D911	8-719-200-02	s DIODE 10E2
D912	8-719-200-02	s DIODE 10E2
D913	8-719-106-45	s DIODE RD9.1M-B3
D914	8-719-200-02	s DIODE 10E2
D915	8-719-800-76	s DIODE 1SS226
D916	8-719-911-19	s DIODE 1SS119
DDC901	1-464-528-11	s CONVERTER UNIT, DC-DC
DL1	1-415-452-21	s DELAY LINE 810nS
DL2	1-415-154-00	s DELAY LINE 35nS
DL3	1-415-154-00	s DELAY LINE 35nS
DL4	1-415-544-11	s DELAY LINE 450nS
F901	Δ 1-532-325-00	s FUSE, TIME-LAG 6.3A 250V
FL1	1-235-009-21	s FILTER, HIGH-PASS
FL2	1-231-581-21	s FILTER, HIGH-PASS
FL3	1-235-478-11	s FILTER, HIGH-PASS
FL4	1-235-477-11	s FILTER, HIGH-PASS
FL5	1-236-039-11	s FILTER, LOW-PASS
FL6	1-235-469-11	s FILTER, LOW-PASS
FL7	1-235-473-11	s FILTER, LOW-PASS
FL8	1-409-410-11	s FILTER, TRAP 4.4MHz
IC1	8-751-870-00	s IC CX187
IC2	8-759-200-60	s IC TA7060AP
IC3	8-759-206-29	s IC TA7060AP-SONY
IC4	8-752-006-12	s IC CX20061
IC5	8-749-900-68	s IC BX1447L
IC6	8-749-900-59	s IC BX1448L
IC7	8-752-004-50	s IC CX20045
IC8	8-752-006-12	s IC CX20061
IC9	8-759-400-06	s IC AN608P
IC10	8-741-114-00	s IC BX1140
IC11	8-759-922-36	s IC CX20060
IC12	8-759-400-06	s IC AN608P
IC13	8-759-111-69	s IC UPC1037HA
IC14	8-759-908-17	s IC TL082CPS
IC15	8-759-208-11	s IC TC4053BFHB
IC16	8-759-400-06	s IC AN608P
IC17	8-759-207-38	s IC TA7374P
IC18	8-752-322-34	s IC CXL5003M
IC19	8-759-941-68	s IC BA7131F
IC20	8-759-100-93	s IC UPC393G2

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

## (VA-76 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC21	8-759-982-21	s	IC RC78L05A
IC22	8-759-708-09	s	IC NJM78L09A
IC23	8-759-100-93	s	IC UPC393G2
IC24	8-759-200-90	s	IC TC4538BF
IC301	8-759-200-60	s	IC TA7060AP
IC302	8-759-200-60	s	IC TA7060AP
IC403	8-759-200-90	s	IC TC4538BF
IC404	8-759-200-68	s	IC TC4011BF
IC405	8-752-006-12	s	IC CX20061
IC406	8-759-200-60	s	IC TA7060AP
IC501	8-759-208-11	s	IC TC4053BFHB
IC502	8-759-324-11	s	IC HA12411
IC503	8-759-201-47	s	IC TA7357AP
IC504	8-759-929-19	s	IC MB88323PF
IC601	8-759-700-09	s	IC NJM2043M-D
IC602	8-759-981-XX	s	IC RC4560M
IC604	8-759-700-43	s	IC NJM4558M
IC605	8-759-700-43	s	IC NJM4558M
IC606	8-752-031-28	s	IC CXA1098Q
IC607	8-759-700-43	s	IC NJM4558M
IC608	8-759-700-43	s	IC NJM4558M
IC609	8-759-700-43	s	IC NJM4558M
IC610	8-759-008-82	s	IC MC14013BF
IC611	8-759-100-95	s	IC UPC324G2
IC612	8-759-200-68	s	IC TC4011BF
IC613	8-759-208-15	s	IC TC4066BFHB
IC614	8-759-208-11	s	IC TC4053BFHB
IC615	8-759-209-90	s	IC TC4S71F
IC616	8-759-209-90	s	IC TC4S71F
IC901	8-759-700-43	s	IC NJM4558M
IC902	8-759-912-55	s	IC S-81250HG
IC903	8-759-278-06	s	IC TA78L006AP
L1	1-408-420-00	s	INDUCTOR 82uH
L3	1-410-087-31	s	INDUCTOR 10mH
L4	1-410-482-31	s	INDUCTOR 100uH
L6	1-410-494-11	s	INDUCTOR 1mH
L7	1-410-482-31	s	INDUCTOR 100uH
L8	1-410-482-31	s	INDUCTOR 100uH
L9	1-410-482-31	s	INDUCTOR 100uH
L10	1-410-482-31	s	INDUCTOR 100uH
L15	1-410-473-11	s	INDUCTOR 18uH
L16	1-410-482-31	s	INDUCTOR 100uH
L17	1-410-482-31	s	INDUCTOR 100uH
L18	1-410-468-11	s	INDUCTOR 6.8uH
L21	1-410-482-31	s	INDUCTOR 100uH
L22	1-410-471-11	s	INDUCTOR 12uH
L23	1-410-471-11	s	INDUCTOR 12uH
L26	1-410-482-31	s	INDUCTOR 100uH
L27	1-410-478-11	s	INDUCTOR 47uH
L28	1-410-482-31	s	INDUCTOR 100uH
L29	1-410-482-31	s	INDUCTOR 100uH
L30	1-410-482-31	s	INDUCTOR 100uH
L31	1-410-470-11	s	INDUCTOR 10uH
L32	1-410-482-31	s	INDUCTOR 100uH
L33	1-410-468-11	s	INDUCTOR 6.8uH
L201	1-408-406-00	s	INDUCTOR 5.6uH
L202	1-410-482-31	s	INDUCTOR 100uH
L204	1-410-482-31	s	INDUCTOR 100uH
L205	1-410-482-31	s	INDUCTOR 100uH

## (VA-76 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
L206	1-410-482-31	s	INDUCTOR 100uH
L207	1-410-482-31	s	INDUCTOR 100uH
L208	1-410-482-31	s	INDUCTOR 100uH
L209	1-410-482-31	s	INDUCTOR 100uH
L212	1-410-482-31	s	INDUCTOR 100uH
L301	1-410-482-31	s	INDUCTOR 100uH
L302	1-410-482-31	s	INDUCTOR 100uH
L303	1-410-482-31	s	INDUCTOR 100uH
L304	1-408-425-00	s	INDUCTOR 220uH
L306	1-410-087-31	s	INDUCTOR 10mH
L307	1-410-087-31	s	INDUCTOR 10mH
L308	1-410-482-31	s	INDUCTOR 100uH
L401	1-410-482-31	s	INDUCTOR 100uH
L403	1-410-482-31	s	INDUCTOR 100uH
L405	1-410-482-31	s	INDUCTOR 100uH
L406	1-410-470-11	s	INDUCTOR 10uH
L502	1-410-464-11	s	INDUCTOR 3.3uH
L504	1-408-642-00	s	INDUCTOR 32.3uH
L505	1-410-482-31	s	INDUCTOR 100uH
L506	1-410-482-31	s	INDUCTOR 100uH
L507	1-410-482-31	s	INDUCTOR 100uH
LV1	1-407-565-00	s	COIL, VAR 2.2uH
LV2	1-407-268-00	s	INDUCTOR, VAR 1.5mH
LV601	1-410-856-12	s	COIL, VAR 22mH
LV602	1-410-856-12	s	COIL, VAR 22mH
LV603	1-410-856-12	s	COIL, VAR 22mH
LV701	1-410-856-12	s	COIL, VAR 22mH
LV702	1-410-856-12	s	COIL, VAR 22mH
LV703	1-410-856-12	s	COIL, VAR 22mH
LV704	1-410-856-12	s	COIL, VAR 22mH
PS901	△ 1-532-605-00	s	LINK, IC 0.4A
PS902	△ 1-532-846-11	s	LINK, IC 5.0A
PS903	△ 1-532-846-11	s	LINK, IC 5.0A
Q1	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q3	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q4	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q5	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q6	8-729-216-22	s	TRANSISTOR 2SA1162
Q7	8-729-216-22	s	TRANSISTOR 2SA1162
Q8	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q9	8-729-384-48	s	TRANSISTOR 2SA844-E
Q10	8-729-122-63	s	TRANSISTOR 2SA1226
Q11	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q12	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q13	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q23	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q24	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q26	8-729-216-22	s	TRANSISTOR 2SA1162
Q27	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q28	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q29	8-729-901-01	s	TRANSISTOR DTC144EK
Q30	8-729-901-01	s	TRANSISTOR DTC144EK
Q31	8-729-603-50	s	TRANSISTOR 2SC403SP
Q32	8-729-901-01	s	TRANSISTOR DTC144EK
Q33	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q34	8-729-271-22	s	TRANSISTOR 2SC2712-G
Q35	8-729-400-76	s	TRANSISTOR 2SD1030
Q36	8-729-271-22	s	TRANSISTOR 2SC2712-G

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

## (VA-76 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
Q37	8-729-271-22	s TRANSISTOR 2SC2712-G
Q38	8-729-271-22	s TRANSISTOR 2SC2712-G
Q39	8-729-271-22	s TRANSISTOR 2SC2712-G
Q41	8-729-901-01	s TRANSISTOR DTC144EK
Q42	8-729-271-22	s TRANSISTOR 2SC2712-G
Q43	8-729-271-22	s TRANSISTOR 2SC2712-G
Q44	8-729-271-22	s TRANSISTOR 2SC2712-G
Q45	8-729-201-27	s TRANSISTOR 2SC2715-Y
Q46	8-729-271-22	s TRANSISTOR 2SC2712-G
Q47	8-729-216-22	s TRANSISTOR 2SA1162
Q48	8-729-901-01	s TRANSISTOR DTC144EK
Q49	8-729-271-22	s TRANSISTOR 2SC2712-G
Q50	8-729-271-22	s TRANSISTOR 2SC2712-G
Q51	8-729-271-22	s TRANSISTOR 2SC2712-G
Q52	8-729-216-22	s TRANSISTOR 2SA1162
Q53	8-729-201-05	s TRANSISTOR 2SC2878-B
Q54	8-729-271-22	s TRANSISTOR 2SC2712-G
Q55	8-729-100-66	s TRANSISTOR 2SC1623
Q56	8-729-901-01	s TRANSISTOR DTC144EK
Q57	8-729-216-22	s TRANSISTOR 2SA1162
Q58	8-729-100-66	s TRANSISTOR 2SC1623
Q59	8-729-216-22	s TRANSISTOR 2SA1162
Q60	8-729-271-22	s TRANSISTOR 2SC2712-G
Q61	8-729-901-01	s TRANSISTOR DTC144EK
Q62	8-729-901-01	s TRANSISTOR DTC144EK
Q201	8-729-271-22	s TRANSISTOR 2SC2712-G
Q204	8-729-901-01	s TRANSISTOR DTC144EK
Q205	8-729-901-01	s TRANSISTOR DTC144EK
Q206	8-729-271-22	s TRANSISTOR 2SC2712-G
Q207	8-729-901-01	s TRANSISTOR DTC144EK
Q208	8-729-901-01	s TRANSISTOR DTC144EK
Q209	8-729-901-01	s TRANSISTOR DTC144EK
Q210	8-729-271-22	s TRANSISTOR 2SC2712-G
Q211	8-729-271-22	s TRANSISTOR 2SC2712-G
Q212	8-729-216-22	s TRANSISTOR 2SA1162
Q213	8-729-216-22	s TRANSISTOR 2SA1162
Q214	8-729-216-22	s TRANSISTOR 2SA1162
Q301	8-729-177-22	s TRANSISTOR 2SB772-Q
Q302	8-729-216-22	s TRANSISTOR 2SA1162
Q303	8-729-177-22	s TRANSISTOR 2SB772-Q
Q304	8-729-216-22	s TRANSISTOR 2SA1162
Q305	8-729-271-22	s TRANSISTOR 2SC2712-G
Q306	8-729-901-01	s TRANSISTOR DTC144EK
Q307	8-729-113-32	s TRANSISTOR 2SB733
Q308	8-729-271-22	s TRANSISTOR 2SC2712-G
Q309	8-729-901-01	s TRANSISTOR DTC144EK
Q310	8-729-901-01	s TRANSISTOR DTC144EK
Q311	8-729-901-01	s TRANSISTOR DTC144EK
Q321	8-729-271-22	s TRANSISTOR 2SC2712-G
Q322	8-729-400-76	s TRANSISTOR 2SD1030
Q323	8-729-271-22	s TRANSISTOR 2SC2712-G
Q324	8-729-271-22	s TRANSISTOR 2SC2712-G
Q325	8-729-271-22	s TRANSISTOR 2SC2712-G
Q326	8-729-271-22	s TRANSISTOR 2SC2712-G
Q327	8-729-271-22	s TRANSISTOR 2SC2712-G
Q328	8-729-271-22	s TRANSISTOR 2SC2712-G
Q329	8-729-216-22	s TRANSISTOR 2SA1162
Q330	8-729-271-22	s TRANSISTOR 2SC2712-G
Q331	8-729-216-22	s TRANSISTOR 2SA1162
Q332	8-729-603-50	s TRANSISTOR 2SC403SP

## (VA-76 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
Q333	8-729-603-50	s TRANSISTOR 2SC403SP
Q341	8-729-271-22	s TRANSISTOR 2SC2712-G
Q342	8-729-271-22	s TRANSISTOR 2SC2712-G
Q343	8-729-271-22	s TRANSISTOR 2SC2712-G
Q344	8-729-271-22	s TRANSISTOR 2SC2712-G
Q345	8-729-271-22	s TRANSISTOR 2SC2712-G
Q346	8-729-271-22	s TRANSISTOR 2SC2712-G
Q401	8-729-271-22	s TRANSISTOR 2SC2712-G
Q402	8-729-271-22	s TRANSISTOR 2SC2712-G
Q403	8-729-271-22	s TRANSISTOR 2SC2712-G
Q404	8-729-901-01	s TRANSISTOR DTC144EK
Q406	8-729-271-22	s TRANSISTOR 2SC2712-G
Q407	8-729-400-76	s TRANSISTOR 2SD1030
Q408	8-729-901-01	s TRANSISTOR DTC144EK
Q409	8-729-271-22	s TRANSISTOR 2SC2712-G
Q410	8-729-271-22	s TRANSISTOR 2SC2712-G
Q501	8-729-271-22	s TRANSISTOR 2SC2712-G
Q502	8-729-271-22	s TRANSISTOR 2SC2712-G
Q503	8-729-271-22	s TRANSISTOR 2SC2712-G
Q504	8-729-901-01	s TRANSISTOR DTC144EK
Q505	8-729-901-01	s TRANSISTOR DTC144EK
Q506	8-729-271-22	s TRANSISTOR 2SC2712-G
Q507	8-729-216-22	s TRANSISTOR 2SA1162
Q508	8-729-271-22	s TRANSISTOR 2SC2712-G
Q509	8-729-271-22	s TRANSISTOR 2SC2712-G
Q510	8-729-216-22	s TRANSISTOR 2SA1162
Q511	8-729-603-50	s TRANSISTOR 2SC403SP
Q512	8-729-603-50	s TRANSISTOR 2SC403SP
Q513	8-729-901-01	s TRANSISTOR DTC144EK
Q514	8-729-901-01	s TRANSISTOR DTC144EK
Q601	8-729-178-55	s TRANSISTOR 2SC2785-E
Q602	8-729-178-55	s TRANSISTOR 2SC2785-E
Q603	8-729-202-38	s TRANSISTOR 2SC3326N
Q604	8-729-902-99	s TRANSISTOR DTC114TK
Q605	8-729-202-38	s TRANSISTOR 2SC3326N
Q606	8-729-271-22	s TRANSISTOR 2SC2712-G
Q607	8-729-202-38	s TRANSISTOR 2SC3326N
Q608	8-729-271-22	s TRANSISTOR 2SC2712-G
Q610	8-729-902-99	s TRANSISTOR DTC114TK
Q631	8-729-178-55	s TRANSISTOR 2SC2785-E
Q632	8-729-178-55	s TRANSISTOR 2SC2785-E
Q633	8-729-271-22	s TRANSISTOR 2SC2712-G
Q634	8-729-271-22	s TRANSISTOR 2SC2712-G
Q635	8-729-271-22	s TRANSISTOR 2SC2712-G
Q636	8-729-901-01	s TRANSISTOR DTC144EK
Q637	8-729-109-42	s TRANSISTOR 2SK94-X2
Q639	8-729-901-06	s TRANSISTOR DTA144EK
Q640	8-729-902-99	s TRANSISTOR DTC114TK
Q671	8-729-202-38	s TRANSISTOR 2SC3326N
Q672	8-729-902-99	s TRANSISTOR DTC114TK
Q701	8-729-178-55	s TRANSISTOR 2SC2785-E
Q702	8-729-178-55	s TRANSISTOR 2SC2785-E
Q703	8-729-202-38	s TRANSISTOR 2SC3326N
Q704	8-729-902-99	s TRANSISTOR DTC114TK
Q705	8-729-202-38	s TRANSISTOR 2SC3326N
Q706	8-729-271-22	s TRANSISTOR 2SC2712-G
Q707	8-729-271-22	s TRANSISTOR 2SC2712-G
Q708	8-729-202-38	s TRANSISTOR 2SC3326N
Q709	8-729-271-22	s TRANSISTOR 2SC2712-G
Q710	8-729-902-99	s TRANSISTOR DTC114TK

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.



## (VA-76 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
Q731	8-729-178-55	s TRANSISTOR 2SC2785-E
Q732	8-729-178-55	s TRANSISTOR 2SC2785-E
Q733	8-729-271-22	s TRANSISTOR 2SC2712-G
Q734	8-729-271-22	s TRANSISTOR 2SC2712-G
Q735	8-729-271-22	s TRANSISTOR 2SC2712-G
Q736	8-729-901-01	s TRANSISTOR DTC144EK
Q737	8-729-109-42	s TRANSISTOR 2SK94-X2
Q739	8-729-901-06	s TRANSISTOR DTA144EK
Q740	8-729-902-99	s TRANSISTOR DTC114TK
Q771	8-729-202-38	s TRANSISTOR 2SC3326N
Q772	8-729-902-99	s TRANSISTOR DTC114TK
Q801	8-729-271-22	s TRANSISTOR 2SC2712-G
Q802	8-729-901-01	s TRANSISTOR DTC144EK
Q803	8-729-820-07	s TRANSISTOR 2SD1685-G
Q811	8-729-905-53	s TRANSISTOR 2SD1055-R
Q812	8-729-982-22	s TRANSISTOR 2SB822
Q813	8-729-216-22	s TRANSISTOR 2SA1162
Q814	8-729-901-06	s TRANSISTOR DTA144EK
Q832	8-729-903-29	s TRANSISTOR DTC114TK
Q833	8-729-901-01	s TRANSISTOR DTC144EK
Q834	8-729-901-01	s TRANSISTOR DTC144EK
Q835	8-729-901-01	s TRANSISTOR DTC144EK
Q836	8-729-903-29	s TRANSISTOR DTA114TK
Q837	8-729-903-29	s TRANSISTOR DTA114TK
Q838	8-729-901-06	s TRANSISTOR DTA144EK
Q839	8-729-901-06	s TRANSISTOR DTA144EK
Q840	8-729-901-06	s TRANSISTOR DTA144EK
Q841	8-729-271-22	s TRANSISTOR 2SC2712-G
Q842	8-729-271-22	s TRANSISTOR 2SC2712-G
Q843	8-729-901-06	s TRANSISTOR DTA144EK
Q844	8-729-901-06	s TRANSISTOR DTA144EK
Q872	8-729-271-22	s TRANSISTOR 2SC2712-G
Q873	8-729-271-22	s TRANSISTOR 2SC2712-G
Q874	8-729-271-22	s TRANSISTOR 2SC2712-G
Q875	8-729-901-06	s TRANSISTOR DTA144EK
Q901	8-729-205-32	s TRANSISTOR 2SB553-Y
Q902	8-729-216-22	s TRANSISTOR 2SA1162
Q903	8-729-216-22	s TRANSISTOR 2SA1162
Q904	8-729-901-01	s TRANSISTOR DTC144EK
Q905	8-729-271-22	s TRANSISTOR 2SC2712-G
Q907	8-729-216-22	s TRANSISTOR 2SA1162
Q908	8-729-113-32	s TRANSISTOR 2SB733
Q909	8-729-901-01	s TRANSISTOR DTC144EK
Q910	8-729-113-32	s TRANSISTOR 2SB733
Q911	8-729-113-32	s TRANSISTOR 2SB733
Q912	8-729-901-01	s TRANSISTOR DTC144EK
Q913	8-729-901-01	s TRANSISTOR DTC144EK
Q914	8-729-216-22	s TRANSISTOR 2SA1162
Q915	8-729-216-22	s TRANSISTOR 2SA1162
Q916	8-729-900-53	s TRANSISTOR DTC114EK
R3	1-215-416-00	s METAL 620 1% 1/6W
R15	1-215-424-00	s METAL 1.3K 1% 1/6W
R16	1-215-416-00	s METAL 620 1% 1/6W
R19	1-215-397-00	s METAL 100 1% 1/6W
R22	1-216-115-00	s METAL, CHIP 560K 5% 1/10W
R24	1-215-424-00	s METAL 1.3K 1% 1/6W
R30	1-215-427-00	s METAL 1.8K 1% 1/6W
R34	1-215-397-00	s METAL 100 1% 1/6W
R43	1-215-406-00	s METAL 240 1% 1/6W
R45	1-215-411-00	s METAL 390 1% 1/6W

## (VA-76 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R60	1-215-426-00	s METAL 1.6K 1% 1/6W
R64	1-215-419-00	s METAL 820 1% 1/6W
R65	1-215-405-00	s METAL 220 1% 1/6W
R87	1-215-405-00	s METAL 220 1% 1/6W
R89	1-215-409-00	s METAL 330 1% 1/6W
R91	1-215-417-00	s METAL 680 1% 1/6W
R103	1-215-424-00	s METAL 1.3K 1% 1/6W
R106	1-215-432-00	s METAL 3K 1% 1/6W
R107	1-215-413-00	s METAL 470 1% 1/6W
R110	1-215-413-00	s METAL 470 1% 1/6W
R125	1-216-650-11	s METAL, CHIP 910 0.5% 1/10W
R135	1-215-437-00	s METAL 4.7K 1% 1/6W
R139	1-215-445-00	s METAL 10K 1% 1/6W
R140	1-215-433-00	s METAL 3.3K 1% 1/6W
R156	1-215-429-00	s METAL 2.2K 1% 1/6W
R158	1-215-441-00	s METAL 6.8K 1% 1/6W
R159	1-215-433-00	s METAL 3.3K 1% 1/6W
R162	1-215-419-00	s METAL 820 1% 1/6W
R164	1-215-419-00	s METAL 820 1% 1/6W
R179	1-216-039-00	s METAL, CHIP 390 5% 1/10W
R199	1-216-651-11	s METAL, CHIP 1K 0.5% 1/10W
R202	1-215-416-00	s METAL 620 1% 1/6W
R210	1-215-405-00	s METAL 220 1% 1/6W
R213	1-216-643-11	s METAL, CHIP 470 0.5% 1/10W
R237	1-216-748-11	s METAL, CHIP 39K 1% 1/10W
R310	1-249-414-11	s CARBON 560 5% 1/4W
R327	1-215-413-00	s METAL 470 1% 1/6W
R328	1-215-423-00	s METAL 1.2K 1% 1/6W
R330	1-216-748-11	s METAL, CHIP 39K 1% 1/10W
R335	1-215-423-00	s METAL 1.2K 1% 1/6W
R340	1-216-011-00	s METAL 27 5% 1/10W
R364	1-216-632-11	s METAL, CHIP 160 0.5% 1/10W
R365	1-216-638-11	s METAL, CHIP 300 0.5% 1/10W
R366	1-215-395-00	s METAL 82 1% 1/6W
R368	1-216-021-00	s METAL, CHIP 68 5% 1/10W
R372	1-216-031-00	s METAL, CHIP 180 5% 1/10W
R384	1-215-405-00	s METAL 220 1% 1/6W
R385	1-215-412-00	s METAL 430 1% 1/6W
R405	1-215-429-00	s METAL 2.2K 1% 1/6W
R423	1-216-686-11	s METAL, CHIP 30K 0.5% 1/10W
R452	1-215-397-00	s METAL 100 1% 1/6W
R454	1-215-413-00	s METAL 470 1% 1/6W
R455	1-215-423-00	s METAL 1.2K 1% 1/6W
R462	1-216-027-00	s METAL, CHIP 120 5% 1/10W
R550	1-216-691-11	s METAL, CHIP 47K 0.5% 1/10W
R551	1-216-691-11	s METAL, CHIP 47K 0.5% 1/10W
R651	1-216-115-00	s METAL, CHIP 560K 5% 1/10W
R678	1-216-669-11	s METAL, CHIP 5.6K 0.5% 1/10W
R679	1-216-685-11	s METAL, CHIP 27K 0.5% 1/10W
R681	1-216-663-11	s METAL, CHIP 3.3K 0.5% 1/10W
R682	1-216-645-11	s METAL, CHIP 560 0.5% 1/10W
R683	1-216-665-11	s METAL, CHIP 3.9K 0.5% 1/10W
R684	1-216-683-11	s METAL, CHIP 22K 0.5% 1/10W
R685	1-216-672-11	s METAL, CHIP 7.5K 0.5% 1/10W
R687	1-216-674-11	s METAL, CHIP 9.1K 0.5% 1/10W
R688	1-216-651-11	s METAL, CHIP 1K 0.5% 1/10W
R689	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W
R751	1-216-115-00	s METAL, CHIP 560K 5% 1/10W
R775	1-215-472-00	s METAL 130K 1% 1/6W
R777	1-216-669-11	s METAL, CHIP 5.6K 0.5% 1/10W

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

## (VA-76 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R778	1-216-685-11	s METAL, CHIP 27K 0.5% 1/10W
R780	1-216-663-11	s METAL, CHIP 3.3K 0.5% 1/10W
R781	1-216-645-11	s METAL, CHIP 560 0.5% 1/10W
R782	1-216-665-11	s METAL, CHIP 3.9K 0.5% 1/10W
R783	1-216-683-11	s METAL, CHIP 22K 0.5% 1/10W
R784	1-216-672-11	s METAL, CHIP 7.5K 0.5% 1/10W
R786	1-216-674-11	s METAL, CHIP 9.1K 0.5% 1/10W
R787	1-216-651-11	s METAL, CHIP 1K 0.5% 1/10W
R788	1-216-667-11	s METAL, CHIP 4.7K 0.5% 1/10W
R908	1-216-311-00	s METAL 6.8 5% 1/10W
R913	1-216-651-11	s METAL, CHIP 1K 0.5% 1/10W
R914	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W
R915	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W
R920	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W
R921	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W
R928	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W
R929	1-216-675-11	s METAL, CHIP 10K 0.5% 1/10W
RV1	1-230-520-11	s RES, ADJ, METAL 1K
RV2	1-230-520-11	s RES, ADJ, METAL 1K
RV3	1-230-526-11	s RES, ADJ, METAL 47K
RV4	1-230-520-11	s RES, ADJ, METAL 1K
RV5	1-230-524-11	s RES, ADJ, METAL 22K
RV6	1-230-523-11	s RES, ADJ, METAL 10K
RV7	1-230-522-11	s RES, ADJ, METAL 4.7K
RV8	1-230-522-11	s RES, ADJ, METAL 4.7K
RV9	1-230-522-11	s RES, ADJ, METAL 4.7K
RV10	1-230-526-11	s RES, ADJ, METAL 47K
RV11	1-230-524-11	s RES, ADJ, METAL 22K
RV12	1-230-521-11	s RES, ADJ, METAL 2.2K
RV13	1-230-520-11	s RES, ADJ, METAL 1K
RV15	1-230-519-11	s RES, ADJ, METAL 470
RV16	1-230-519-11	s RES, ADJ, METAL 470
RV17	1-230-520-11	s RES, ADJ, METAL 1K
RV18	1-230-520-11	s RES, ADJ, METAL 1K
RV19	1-230-520-11	s RES, ADJ, METAL 1K
RV20	1-230-520-11	s RES, ADJ, METAL 1K
RV21	1-230-520-11	s RES, ADJ, METAL 1K
RV22	1-230-520-11	s RES, ADJ, METAL 1K
RV23	1-230-524-11	s RES, ADJ, METAL 22K
RV24	1-230-520-11	s RES, ADJ, METAL 1K
RV25	1-230-521-11	s RES, ADJ, METAL 2.2K
RV26	1-230-519-11	s RES, ADJ, METAL 470
RV27	1-230-521-11	s RES, ADJ, METAL 2.2K
RV30	1-230-521-11	s RES, ADJ, METAL 2.2K
RV301	1-230-523-11	s RES, ADJ, METAL 10K
RV302	1-230-520-11	s RES, ADJ, METAL 1K
RV303	1-230-520-11	s RES, ADJ, METAL 1K
RV304	1-230-521-11	s RES, ADJ, METAL 2.2K
RV401	1-230-527-11	s RES, ADJ, METAL 100K
RV402	1-230-520-11	s RES, ADJ, METAL 1K
RV403	1-230-521-11	s RES, ADJ, METAL 2.2K
RV404	1-230-519-11	s RES, ADJ, METAL 470
RV405	1-230-521-11	s RES, ADJ, METAL 2.2K
RV501	1-230-520-11	s RES, ADJ, METAL 1K
RV601	1-230-527-11	s RES, ADJ, METAL 100K
RV602	1-230-523-11	s RES, ADJ, METAL 10K
RV604	1-230-522-11	s RES, ADJ, METAL 4.7K
RV605	1-230-522-11	s RES, ADJ, METAL 4.7K
RV606	1-230-528-11	s RES, ADJ, METAL 220K

## (VA-76 BOARD)

Ref. No. or Q'ty	Part No.	SP Description
RV607	1-230-523-11	s RES, ADJ, METAL 10K
RV631	1-230-526-11	s RES, ADJ, METAL 47K
RV701	1-230-527-11	s RES, ADJ, METAL 100K
RV702	1-230-523-11	s RES, ADJ, METAL 10K
RV704	1-230-522-11	s RES, ADJ, METAL 4.7K
RV705	1-230-522-11	s RES, ADJ, METAL 4.7K
RV706	1-230-528-11	s RES, ADJ, METAL 220K
RV707	1-230-523-11	s RES, ADJ, METAL 10K
RV708	1-230-523-11	s RES, ADJ, METAL 10K
RV731	1-230-526-11	s RES, ADJ, METAL 47K
RV801	1-230-524-11	s RES, ADJ, METAL 22K
RV831	1-230-522-11	s RES, ADJ, METAL 4.7K
RV832	1-230-522-11	s RES, ADJ, METAL 4.7K
RV871	1-230-529-11	s RES, ADJ, METAL 470K
RV872	1-230-526-11	s RES, ADJ, METAL 47K
RV873	1-230-526-11	s RES, ADJ, METAL 47K
RV901	1-230-522-11	s RES, ADJ, METAL 4.7K
RV902	1-230-524-11	s RES, ADJ, METAL 22K
RV903	1-230-524-11	s RES, ADJ, METAL 22K
S1	1-553-510-00	s SWITCH, SLIDE

## VR-85 BOARD

Ref. No. or Q'ty	Part No.	SP Description
	1-629-249-11	o PRINTED CIRCUIT BOARD, VR-85
RV1	1-237-764-12	s RES, VAR CARBON 100K

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.

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FRAME  
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Ref. No.  
or Q'ty

Part No. SP Description

	A-6709-664-A	s	HEAD DRUM ASS'Y DUH-50A-R
	A-6709-665-A	s	DRUM ASS'Y UPPER DUR-50-R
	1-452-238-11	o	MAGNET, FIXED
	1-558-261-31	s	WIRE, FLEXIBLE CARD, 30P (SY TO HN)
	1-574-419-11	s	WIRE, FLEXIBLE CARD, 23P (SY TO SV)
	1-574-420-11	s	WIRE, FLEXIBLE CARD, 34P (VA TO SY)
CN1001	1-564-603-11	s	CONNECTOR (WITH DC SW) 4P, MALE
CN1002	1-561-781-21	s	CONNECTOR, BNC, FEMALE "VIDEO IN"
CN1003	1-561-781-21	s	CONNECTOR, BNC, FEMALE "VIDEO OUT"
CN205	1-562-148-11	o	HOUSING, 3P
	1-564-026-00	o	CONTACT, FEMALE, AWG26-30
H1001	8-825-578-22	s	HEAD, ACE EPS264-5803 "AUDIO/CTL/CH-1 ERASE"
H1002	8-825-771-31	s	HEAD, TIME CODE PP295-58 "TIME CODE"
H1003	8-825-544-20	s	HEAD, ERASE EF248-58 "FULL ERASE"
M1001	8-835-235-01	s	MOTOR, DC MNR-2900B "DRUM"
M1002	1-541-163-00	s	MOTOR, DC "THREADING"
M1003	8-835-123-01	s	MOTOR, DC MNR-7400A "REEL"
M1004	8-835-351-01	s	MOTOR, DC BHF-1913B "CAPSTAN"
PM1001	1-454-381-11	s	SOLENOID "T-IDLER"
PM1002	1-454-383-11	s	SOLENOID "T-BRAKE"
PM1003	1-454-381-11	s	SOLENOID "S-IDLER"
PM1004	1-454-383-11	s	SOLENOID "S-BRAKE"
PM1005	1-454-386-11	s	SOLENOID "PINCH"
PM1006	1-454-382-11	s	SOLENOID "TEN-REG"
S1001	1-570-028-11	s	SWITCH, MICRO "THREAD END"
S1002	1-570-028-11	s	SWITCH, MICRO "UNTHREAD END"
S1003	1-570-028-21	s	SWITCH, MICRO "CASSETTE IN"
S1004	1-570-028-21	s	SWITCH, MICRO "CASSETTE LOCK"
S1005	1-570-028-11	s	SWITCH, MICRO "MISS REC"
S1006	1-570-028-11	s	SWITCH, MICRO "EJECT"
S1007	1-570-028-11	s	SWITCH, MICRO "SP"

16-4. PACKING MATERIAL AND ACCESSORIES

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PACKING MATERIALS & SUPPLIED ACCESSORIES  
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Ref. No.  
or Q'ty

Part No. SP Description

	3-698-917-01	o	BELT, SHOULDER
	3-731-655-01	o	CUSHION (UPPER)
	3-731-656-01	o	CUSHION (LOWER)
	3-786-830-11	s	MANUAL, INSTRUCTION
	4-885-820-01	s	BAG, PROTECTION

NOTE: Please see pages 16-27 and 16-28 for the parts that  
are not listed in the parts list.



**Abstract**

Part No.	SP Description
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J-6001-820-A o DRUM ECCENTRICITY GAUGE (3)  
J-6001-830-A o DRUM ECCENTRICITY GAUGE (2)  
J-6001-840-A o DRUM ECCENTRICITY GAUGE (1)  
J-6001-930-A o DRUM ECCENTRICITY GAUGE (4)  
J-6002-270-A o REEL TABLE TORQUE MEASUREMENT TAPE

J-6009-830-A o FLATNESS PLATE  
J-6080-029-A o SMALL MIRROR FOR ADJUSTMENT  
J-6080-030-A o SPACE MIRROR  
J-6130-010-A o REEL TABLE HEIGHT CHECK BASE JIG  
J-6130-020-A o REEL TABLE HEIGHT CHECK JIG

J-6152-450-A o CLEARANCE CHECK GAUGE  
J-6152-560-A o TAPE GUIDE SLANTNESS CHECK TOOL  
J-6153-020-A o DIHEDRAL ADJUSTING ECCENTRIC  
SCREWDRIVER  
Y-2031-001-0 o CLEANING FLUID

2-034-697-00 o CLEANING PIECE  
3-702-390-01 o ECCENTRIC SCREWDRIVER (4mm dia.)  
7-700-736-01 o L-SHAPED HEXAGONAL WRENCH (1.27mm)  
7-732-050-20 o TENSION SCALE (50G FULL SCALE)  
7-732-050-30 o TENSION SCALE (100G FULL SCALE)

7-732-050-50 o TENSION SCALE (500G FULL SCALE)  
8-960-020-62 o ALIGNMENT TAPE, RR5-2SB PAL  
8-960-036-02 o ALIGNMENT TAPE, RR2-1SD PAL  
8-960-036-80 o ALIGNMENT TAPE, RR5-1SD PAL  
9-911-053-00 o THICKNESS GAUGE

Standard Products HEAD DEMAGNETIZER (HE-4)

NOTE: Please see pages 16-27 and 16-28 for the parts that are not listed in the parts list.